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ABSTRACT

This study presents the main features of a model for the design, production, and distribution of educational media, software, hardware, and equipment for the schools of the Czechoslovak Socialist Republic (CSR). Introduced by an overview of the CSR educational system, the report includes a discussion of media in the schools dealing with such concerns as principles and aims, criteria for introduction of hardware, integration into the educational process, a taxonomy of media, and educational equipment requirements. The evaluation process is described, and quantitative data are provided on education in the CSR in 1976-77 and production and distribution of both software and hardware. Planning, organization, and procedures for approval are discussed in relation to the production system, as well as the manufacture of educational materials and equipment, the role of specialized institutions, media produced in the schools, and textbook production. A description of the provision and distribution system includes central distribution, the regional delivery scheme, and the individual order scheme. Also considered are further training of educational personnel and mass communication, i.e., school radio broadcasting and television programs for schools. Appendices include organization charts, an outline of the multimedia system, surveys of recommended hardware, and diagrams of special classrooms for audiovisual communication. (LLS)

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April 1978

PRODUCTION AND DISTRIBUTION OF EDUCATIONAL MATERIALS AND EQUIPMENT IN THE CZECHOSLOVAK SOCIALIST REPUBLIC

Study prepared for Unesco by
the National Commission of the
CSRR

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I. INTRODUCTION

During the three decades since the end of the Second World War, Czechoslovakia has developed a diversified educational policy based on the principle of a uniform school system. All those trained during this period - agricultural workers, people specialising in the fields of technology, economics, science and culture - have favourably influenced the social, political, economic and cultural development of the nation.

The State finances both the existing educational system and the development of education The education budget includes the cost of teacher training, salaries of university personnel, medical care of teachers, students and student-teachers and also, last but not least, the cost of research and of facilities, furniture, equipment and materials.

Besides construction and maintenance of schools, free textbooks and educational materials, the provision of specialised equipment for the use of educational media are financed from the education budget. A mechanism satisfying the needs of schools according to fixed educational content and methods has been set up in Czechoslovakia to supply them with educational media.

The aim of this study is to set out the main features of a model, set up over the last thirty years, for design, production and distribution of educational media, software, hardware and equipment for schools and which has made a valuable contribution to the development of education in the CSSR.

The study first deals with the main characteristics of the CSSR educational system, at the same time noting that installation of equipment in schools is subordinated to the aims and content of education and the organisation and control of the schools themselves.

CZECHOSLOVAK EDUCATIONAL SYSTEM

1.1. PRINCIPLES AND AIMS

Education in the Czechoslovak Socialist Republic is the affair of all: family, state, local councils, social, cultural, sports and youth organisations, many cultural institutions such as public libraries, theatres, cinemas, art galleries, state radio and television programmes. The unifying principle is, however, the educational system.

The unified educational system in the CSSR includes pre-school, elementary, diversified secondary and university education.

The system provides education not only for youth, but also for a broad strata of working people for whom it creates opportunities to improve their qualifications and enlarge their knowledge. Education in the CSSR is an open system, propitious to those who have completed their studies at school and wish to continue studying at institutions of higher education. Special education for handicapped children and the care of orphans is also part and parcel of the unified educational system. Special institutions exist for advanced children or those showing particular aptitudes in specific areas - languages, art, sports, music, drama, etc.

Education aims at harmonious preparation of each individual for life in a developed socialist country with a high rate of scientific and technological development. The historic traditions of Czech and Slovak education are not, however, ignored. The progressive and humanitarian heritage of the 17th century Czech pedagogue, Jan Amos Comenius, has been integrated into the educational system of the Czechoslovak Socialist Republic.

Czechoslovakian education is founded upon the basic principle of democracy. Education has developed out of the revolutionary changes brought about by the working class in alliance with agricultural workers and other working people. Education, from the elementary to university level is available for children from all classes, and the masses of the working people. The CSSR has given a practical application to the principle of that great "teacher of nations" Jan Amos Comenius, who says that " not only the children

of rich and noble people, but all, rich, powerful, high-born and subjects, boys and girls in all towns, small townships, villages and farmsteads are to be accepted in schools . . . because all people were born to be people. . ."

The principle of uniformity is linked to this basic principle of democracy, especially in elementary education which is compulsory for all children and, at present, lasts nine years.

Complete homogeneous secondary education with final examinations of equivalent social value will become fully operational according to the "Project of Further Development of Czechoslovak Educational System" which was approved in 1976, in the next ten years. The homogeneity is ensured by the uniformity of syllabuses, curricula and textbooks throughout the country.

Education is not merely a matter for the school, but for the whole society: it is not an end in itself, but serves the needs of society and of each individual. For this reason, the principle of articulation between school and life is applied in education. Its aim is to give pupils the necessary theoretical bases and practical skills which are required by the corresponding level of modern production, the structure of the scientific and technical revolution and to lead the pupils towards independant mature thinking and to stimulate the development of their mental and physical capacities.

These principles of democracy, uniformity and articulation between school and life can easily be applied in practice, due to the fact that education in the CSSR is state run and free of charge.

1.2. ORGANISATION

1.2.1. Present state

The Czech school system is unified in its conception, content and organisation. In accordance with the law passed in 1960; it has the following structure:

a) Educational institutions for children of pre-school age : Kindergartens are centres which, in cooperation with the family, are responsible for the all round development of children from their early childhood to the age of three. Attendance is not compulsory.

Nursery schools cater - again, in cooperation with the family - for the all round development of children from 3 to 5.

Attendance is not compulsory. Conditions have been successfully developed for easy transition from home to the elementary school for all five year olds having attended or who might attend the last years of nursery school.

b) Elementary education: Elementary nine-year schools provide basic education. At present, compulsory education starts at the age of six and lasts nine years. As of 1983/84, it will last ten years. Physically handicapped and mentally retarded children attend special schools, some of which take boarders. There are also, at the primary level, child care centres where working mothers can leave their children. There are also the so called "childrens' centres" for young pupils and school clubs for youth and older children. Attendance is not compulsory and children are accepted at the parents' request.

c) Secondary education: The secondary educational level provides for general, polytechnical and vocational education. Orientation and contents are different, but equivalent as to their social value. Students attend secondary schools on finishing elementary education. Success in final examinations at secondary schools qualifies the student for University entrance.

The network of secondary education institutions comprises:

- Training institutions and vocational schools which prepare qualified workers. The training institutions provide practical training, secondary, general, vocational and free-time studies. Vocational schools provide general and vocational education and, eventually, free-time studies.

- Secondary schools for working people. Adults who completed their elementary education and who are skilled in some trade, or who have worked since leaving school can complete and improve their vocational qualifications, general and polytechnic education in these schools. Success qualifies the student for university entrance.

- Technical high schools for secondary vocational education run courses in various disciplines to cater for the developments taking place in the country's economical structure. In the first place, they prepare the workers for middle-level careers.

Four years of study and an examination pass entitles them to university studies. Studies are broadly divided into the categories of technology, economy, agriculture, forestry, pedagogy, applied arts and music.

Technical schools prepare students for lower technical, economic and administrative functions. The studies take two to three years and there is a final examination. On leaving, students can complete their secondary education on a part-time basis.

Gymnasia: four years with final examinations, prepares the student for university entrance or for chosen middle-level careers in branches of the national economy, culture, health service or schools.

d) Higher education: Universities are pedagogic, scientific and cultural institutions at a high level. They prepare highly qualified specialists for creative and management activities in all domaines. High schools exist for technology, branches of the economy, agriculture and art. Regular study, either full or part-time lasts four to six years according to the discipline chosen. Postgraduate study is also available for those who wish to specialise or do research work.

1.2.2. Project for further development of the CSSR educational system

A "Project for the further development of the CSSR educational system" has been compiled in the CSSR. Implementation of this project began in 1976/77 in the primary schools and will continue until 1987. Its aim is to develop the educational system of the fut[illegible]oy means of successive changes in the present educational system; its main feature is the establishment of integrated, twelve year schools. This type of school would ensure - on the basis of its curricula, methods and balance of general and technical education - high-level theoretical preparation of youth for further study and also for life in a developed socialist country. The project describes the educational system as a continuous one which encourages maximum development of the personality. It bridges the gap between elementary and secondary education. Secondary education is seen as an open, flexible system, also rendering possible preparation for university entrance. Harmonisation of the functions and contents of the various types of secondary education is directed to this end. Its

accomplishment supposes the unification of curricula and syllabuses.

Improvement in the living conditions of children and youth in the CSSR has lead to their speedier intellectual development. This, along with an increase in pre-school education, more rational choice of subject matter and use of suitable teaching methods, has enabled the Government to ascertain the optimum length (12 years) necessary to complete full-time education. Of these twelve years, four are taken up with the first cyle of primary school and four for the second cycle. Compulsory education continues afterwards for a minimum of two years in secondary schools.

The "Project for further development of the Czechoslovak educational system" stresses the necessity for life-long education of graduates on the basis of integrating adult education into the educational system.

(The diagramme of the school system is given in annex 1 and a timetable for its implementation in annex 2).

1.3. CONTROL

The place of education in society, its control and division of work therein and levels of responsibility can clearly be seen from its content and position in the CSSR. The basic objectives of education are derived from the principles of the Communist Party of Czechoslovakia's educational policy and are brought to fruition by means of a closely-knit political system.

The CSSR is a federal state formed of two equal nations, the Czechs and the Slovaks. The activities of the Federal National Assembly, the Czech National Council and the Slovak National Council, the Regional, District and Municipal Committees influence the organisation of education.

The following bodies are responsible for control of education: The Government of the Czech Socialist Republic, the Government of the Slovak Socialist Republic and various National Committees.

The Ministries of Education of the CSR and SSR are responsible for educational policy and its application. The Ministries of Education of both Republics directly control the universities,

scientific research centres and other scientific institutions. All other schools and institutions, both for youth and adults, are centrally controlled by them and thus, educational policy is centralised within the framework of the state administration.

The National Committees have the following task: direction and management, appointment of school headmasters, teachers and other staff, and the organisation of teaching. Responsibility for construction, running and maintenance of school buildings and creation of material conditions necessary for successful teaching also falls under their jurisdiction. The responsibilities of the separate branches of National Committees can be defined as follows:

Regional branches of the National Committees direct and administer general and technical secondary education with the exception of vocational training and technical institutions. Vocational training and technical institutions providing adult education are controlled and administered by the competent departmental ministres (i.e. Industry, Transport, Building Trades etc). The Ministry of Education's task, in this case, consists in defining a policy for adult education, making rulings on the organisation of training institutions, status of students, their duties and rights and implementing educational policy.

District branches of National Committees direct not only nurseries, primary and special schools, boarding schools, childrens' centres and youth clubs, but also the schools attached to medical institutions, special borading schools, colleges of art and language.

Municipal branches of National Committees control nursery, elementary and day time special schools, school canteens, pioneer and youth associations. Their directors ensure the links with the school.

The school's supervision system plays an important rôle in achieving educational homogeneity and raising the level of teaching. Under the responsib lity of Ministries of Education, it is carried out both by the Head Office and by the Regional and District National Committees through the mediation of a qualified board of school inspectors who are specialised in the different types of school.

1.4. EDUCATIONAL RESEARCH AND DEVELOPMENT OF EDUCATIONAL MATERIALS

The Ministries of Education of the CSR and the SSR are directly responsible for institutions specialising in pedagogical research or development of educational materials for schools. Scientific research creates the conditions without which the solution of problems in development of different fields of education and those linked to successful teaching would not be possible. The main institutes concerned are: Research Institute of Pedagogy, Research Institute for Technical and Vocational Education and Central Institutes for Further Education of Teachers.

Various enterprises supply schools and educational institutions, with materials and equipment. Most important are the State Publishing House in Prague and the Slovak Pedagogic Publishing House in Bratislava who publish educational literature. Specialised commercial organisations, such as the Komenium in Prague, CSR and the Ucebne Pomocky in Banska Bystrica, SSR are occupied with research, development and distribution of all sorts of teaching media, didactic material and school equipment for nurseries, elementary and secondary schools and partly also for universities.

Independant scientific research institutuions, educational publishing houses and production organisations ensure the development and production of hard- and software for schools. They cooperate closely, under the auspices of the Ministries of Education of both republics. Textbooks, professional journals and educational media for further teacher training are closely linked with conceptual activities, for example, the definition of aims and elaboration of curricula for different types of school. This cooperation ensures unity of objectives and curricula and contributes to the homogeneity of education throughout the country.

1.5. TRAINING AND FURTHER TRAINING OF TEACHERS

The "Project of further development of the Czechoslovak Educational system" also proposes reforms in teacher training.

Institutions for training educational personnel have an important position in Czechoslovakia's educational system. They

enable the quality and qualifications of educational personnel to be raised by means of full-time, part-time and postgraduate studies.

The following types of institutions are responsible for the studies specified under each heading:

Teacher training colleges at the secondary level train nursery school teachers on a full or part-time basis. Studies are linked to final exams . There are also courses for improvement of qualifications of teachers.

Autonomous faculties of education train teachers and educators for schools and educational institutions for children and youth from 16 to 18 years. They also offer courses for selected personnel from nursery schools who wish to continue their studies on a part-time basis.

Faculties of Arts, Education, Science, Mathematics, Physics, Physical Education and Sport, train teachers for children and youth from 6 to 18 years. This training takes the form of a rational study programme within the framework of the university curricula with subsequent specialisation.

Technical universities, schools of economics, Agricultural Colleges, Art Colleges and some University Faculties train those who wish to teach vocational subjects in secondary schools. Full or part-time studies are available. They also organise post-graduate courses for teachers.

There is a nationwide system of lifelong education, closely linked to initial training for further training of teachers. This system is set up on the basis of a three-phased programme:

The first phase is linked to immediately preceeding studies and is compulsory. Its aim is to introduce the student teacher to teaching practice, is carried out in accordance with a work plan and takes one year. The headmaster, his deputy or an experienced teacher play a decisive role in this process.

The second phase usually fulfills an innovative function in the form of postgraduate study (in the case, for example, of nursery school teachers who have passed their final exams) and all teachers participate. It is realised as a two-year part-time study programme and results in acquisition of a degree in

educational studies. This second phase is also compulsory and is a precondition of salary advancement.

The third phase is voluntary for those wishing to specialise. Teachers can choose from various fields of specialisation or a functional study plan proposed by teacher training centres, regional educational institutes and universities. Content is oriented towards training specialists in methodology to work in regional education centres, district centres, etc. The course is part-time.

As well as the above mentioned three-tier system, further teacher training is also organised by teacher training centres, regional and district education centres, special committees and professional associations in schools, each offering a variety of study programmes.

One of the aims of these further training courses is to acquaint the teacher with new educational media. To this end, each institution for further training cooperates in this field with Komenium in Prague and Ucebné pomocky in Banska Bystrica. Both enterprises have established demonstration centres in Prague and Bratislava and are developing a network of centres throughout the country. Permanent exhibitions of audio-visual equipment and programmes and material for teacher training are installed in these Centres which also centralise professional literature. Technical staff of both enterprises provide teachers with information, give lectures on programmes prepared either independantly or in cooperation with institutions participating in further eeucation. These specialised programmes help to acquaint the educators with media, not only from a technical point of view, but also as regards their optimum application in the teaching learning process. This sort of activity is proposed on the basis of demand from the teachers throughout the country. Exhibitions of equipment of both Czechoslovakian and foreign origin and displays of school films are also organised by these two enterprises. This is yet another important factor in further teacher training in the CSSR.

II

MEDIA IN THE SCHOOLS

II

MEDIA IN CZECH AND SLOVAK SCHOOLS

2.1. PRINCIPLES AND AIMS

We define media as educational material which contributes to the teaching learning process, linking curricula with educational methods and thus helping the student to develop his cognitive abilities and inciting in him a desire for knowledge in a wide range of disciplines, in science, technology and art. Not only do they enable teaching to be conducted in a way which ensures maximum efficiency, but also, at the same time, engender qualitative changes in the teacher's approach to his work.

2.2. BASIC CRITERIA FOR INTRODUCTION OF HARDWARE

The main purpose in installing modern audio-visual equipment in schools is to create conditions for quality, efficiency and effectiveness in the teaching-learning process.

The experience of teachers and researchers have confirmed that use of educational soft-and hardware is important in improving the effectiveness of teaching.

The design of educational media and their introduction into the school system is a result of increasing demands for more efficient teaching. Bearing this in mind, the following principles are respected :

1) giving all schools and pupils an opportunity to work with audio-visual media, in order to give access to richer sources of information. This is a direct application of the basic principle of socialist schooling - democratization of education.

2) the application of new teaching methods using audio-visual equipment in schools depends on the type and level of school. Financial resources are also a regulating factor. A principle of differentiated and gradual provision is therefore also applied when installing equipment.

3) materials and equipment must closely relate to curriculum development and compatible with content and methods of instruction. This coherence must be maintained in order to ensure coordination from the design right through to the consumer stage.

2.3. INTEGRATION INTO THE EDUCATIONAL PROCESS

In any educational system, media must be closely related to curricula and textbooks. Incorporation of media into the educational system is taken into account by those elaborating curricula, or writing methodological guides and textbooks.

In this way, a multimedia system is developed for every subject taught, no matter what the level of the school (see annex 4). The standard list which defines media to be used in schools and which, at the same time, specifies how much equipment is needed, is called the "normative".

The "normative" and, therefore, the media, are the same for both Czech and Slovak schools. They differ only when schools require special media in the mother tongue (eventually also for history, geography and music). The normative is also the same in schools for children of a minority language group.

2.4. TAXONOMY OF MEDIA

According to the different modalities of their incorporation into the curriculum, media can be divided into two categories: media for individual work and media for small or large group work.

Different subjects, ages and abilities of pupils require different kinds of materials which must be designed in a way which will ensure maximum effectiveness.

A) Materials for individual work

These are used to give the pupils a live contact with the phenomena about which they have to know. This is one of the pre-requisites for success of progressive educational methods. Modern media permit the pupil to pass from a more or less passive perception and reception of subject matter to problem solving and creative work. The range of materials is very broad, because it includes media designed for the development of a variety of activies.

(a) Materials for observation and collection of data: the multifarious collections of realia, models, graphic symbols, still pictures and audio-visual programmes or audio and visual records belong to this group.

They are used for immediate or mediated observation of the outward character or the inward structure of objects and phenomena, for discovery of relations and links in time and space, the identification of shapes and classes, literature, etc.

(b) Learning aids: Kits for learning natural laws, science teaching materials for pupils, measuring apparatus, etc., belong to this group. Their common characteristic is that they present things in a dynamic way. They serve to evoke phenomena, to examine relations, identify characteristics, increase manual skills, in laboratory, technological and practical work. The principles of programming are also applied here. The technical equipment needed for the pre-vocational education of pupils is also included in this category.

(c) Exercice books and study guides: Exercice books and study guides are important. Exercice books orient the pupils' study and regroup the logical arrangement of information, instructions, problems, questions, transfer etc. The study guides, logically arranged, rationalise acquisition of knowledge in accordance with the development of the pupils' learning capacities and independance.

B) Materials for group work

These are used for groups of different sizes and levels: According to the ways in which they are used, they can be divided into:

(a) visual media - original or natural objects, models;
- media for experiment and laboratory work;
- non projected and projected still pictures (graphics, photographs, maps, film strips, sets of slides);
- dynamic non projected or projected materials (sets of elements for magnetic boards, transparencies, 8 mm cassette silent film).

These mainly classical forms of media never lose their didactic value. Special experimental devices have been developed to demonstrate one or more concepts: these devices present, before the pupil's eyes, the systems in which proceedings and process are connected. With proper control and assistance during the demonstration, the pupil becomes an active participant throughout.

It is the policy in the CSSR to provide schools with a complex, but uniform, set of different materials for both groups and to maintain the balance between individual and group media.

The non projected still picture, i e. a classic wall chart, retains its value, especially at the elementary level, in spite of the advantages of dynamic representations. For many lessons, especially at the lower grade, stability is needed.

(b) audio programmes, tape recordings and records, radio broadcasts.

Audio media can be used not only as an accompaniement for illustrations, documentation and reproduction of artistic, literary and musical works, but also as a simple, ready-to-use method of controlling independant work of students. They substitute the teachers' spoken word in describing problems, whether the subject matter is programme controlled or not; they are also used to overcome didactically or methodologically difficult lessons for example the use of audio oral programmes in language teaching.

Live radio broadcasts may not always correspond, either objectively or subjectively to the subject matter taught. The use of a tape recorded broadcast has, therefore, a greater importance, because the teacher can suit it to his own programme.

(c) Audio visual programmes: - slide and tape programmes;
- sound motion film;
- television broadcasts.

The incorporation of audio visual media into the educatinnal process is one way of linking school with life. At school, they form a parallel to the audio visual information with which the pupil comes into contact outside school by the intermediary of

films and television. From an early age, mass media becomes an integral part of the education of every individual. In the design of audio visual media, particular attention is paid to the problem to be learned. The exhaustive and many sided presentation of an audio visual phenomenon could limit somewhat the development of abstract thinking.

Slide and tape (tape recording with automatic slide change mechanism) enables presentation of complex information. A slide tape programme can, therefore, be made which can be used to control the practical and intellectual activities of the pupil throughout the lesson. It serves as a means of control and evaluation of the pupil.

Sound film has already proved its educational and didactic values. However, there are some organisational and economic difficulties. 16mm sound films are at the disposal of schools in the media lending libraries and they can be borrowed for the necessary time. The establishment of film libraries in the schools is, for economic and production reasons, not possible. It has, therefore, been deemed useful to broadcast these films on television. In higher classes, a more substantial use of television broadcasting can be expected after their massive provision with videotape recorders, as this will enable the teacher to take advantage of the television broadcast to suit his purpose in the same way as he uses programmes recorded from the radio broadcasts.

2.5. RATIONALE FOR EQUIPMENT OF SCHOOLS WITH HARD- AND SOFTWARE

A clear, objective scheme is necessary when approaching the problem of installing audio visual equipment in schools. New audio-visual educational technology only works efficiently when all necessary conditions are fulfilled. Implementation of the equipment plan has, therefore, to be worked out from the point of view of :

a) technical equipment;
b) provision of software (by purchase or own production);
c) training of teachers in new technologies;
d) provision of services (maintenance, repair, preparation of software etc);

The plan must take into account:

a) the needs of the whole school;

b) the specific subjects and their special classrooms.

The idea in Czechoslovakia at the moment is to limit the use of audio visual communication in the classroom to slide and tape, audio, audio-oral programmes and films. As an experiment feedback classrooms equipped with individual response units have been introduced.

It is expected that modern educational materials and equipment will gradually be integrated into traditional teaching procedures and into the lessons - and become a component of various forms of individual studies.

This concept is based on a modular system where instruments and sources of programmes by cross-referencing and combination allow wider possibilities of utilisation of educational materials in the classroom. This ensures a differenciated use of these materials according to their specific characteristics and a larger selection of resources for the different subject matters.

The modular system of devices which has been mentioned means that every classroom can be fitted with devices for slide tape, film, overhead projection, for audio presentation of tapes and records, for watching radio and television programmes. This arrangement also permits the use of each single device independantly or in combination with other elements and means that a school can be equipped gradually.

Devices have been specially developed, or selected and approved for schools. In this way, fulfillment of demands is ensured.

The tables in annex no. 6 (I-IX) show the standard of equipment recommended for the elementary and secondary schools. The matrices show how each piece of equipment is used in teaching different subjects. They give information about equipment which is to be chosen with regard to the types of programme and fitting classrooms, special workrooms etc. In cases where sufficient use of technology in different subjects is ensured in a school, permanent installation in the classroom can be recommended. In this way, optimum conditions for teacher's work are ensured).

2.6. COMBINED SETS OF AUDIOVISUAL EQUIPMENT

Combined sets of audio visual equipment have been arranged for :

A. Teacher's work place (i.e. desk with control panel)

B. Pupil's work place (i.e. a table with headphone, and possibly feedback elements)

C. Classroom walls (i.e. blackboards, projection screens loudspeakers, televisions etc.)

These units comprise the following basic apparatus and equipment:

1. tape recorder (with synchroniser for slide tape presentations);
2. automatic slide projector (for slides with possibility for using cassettes);
3. Overhead projector;
4. Cassette film projector super 8;
5. Sound film projector;
6. Gramophone;
7. Headphones;
8. Set of loudspeakers;
9. Television set;
10. Radio

Special furniture and attachements going with the combined equipment:

11. Projection wall
12. Blackout facilities;
13. Stands, desks, tripods;
14. special furniture - desks, audio visual carrels, shelves, etc.

2.7. EDUCATIONAL EQUIPMENT REQUIREMENTS

Educational equipment (hardware) should be :

- of good quality and work properly;
- safe - it is to be used in schools;
- simple to control;
- universally applicable to all teaching subjects;

We further require that

- the modular arrangement enables varied use and gradual application;
- different kinds of feedback are possible;
- the prices are moderate.

2.8. IMPLICATIONS FOR FURNITURE AND PREMISES

The function of school furniture has changed with the development of various sorts of media and audio-visual equipment. Pupils' desks have been turned into tables where they can operate the equipment; the teacher's desk is equipped for demonstrations and automatic control of equipment. This has also meant rearranging storage space in classrooms. Equipment is usually installed in classrooms where power points are available.

The increased use of media will mean that more changes in the architectural structure of classrooms will eventually be needed.

III

EVALUATION

III

EVALUATION OF USE OF EQUIPMENT IN SCHOOLS AND USE OF FUNDS FOR ACQUISITION OF EDUCATIONAL MATERIAL

Installation of educational materials and equipment in schools is part and parcel of the educational policy of the CSSR. and is, therefore, not only evaluated from a pedagogical, but also an economical point of view. School inspection - an important aspect - gives special attention, at all levels of the system, to the quantitative aspects of audio visual equipment and its optimum use. Relevant surveys included in general evaluation reports on the state of the development of education and on the results of teaching are periodically presented to the Ministry of Education.

On the basis of the data obtained, and on the recommendation of the school inspectors, the different competent bodies of the state educational system ensure that the necessary measures are taken so far as their programme is concerned; the economic sections of the educational authority ensure relevant action in their particular sphere of supplier-consumer relations.

Educational staff in further teacher training institutions also give special attention to the way in which the budget allocated to purchase of materials is used, in order to increase the quality of teaching. They are authorised to present proposals to the educational authority for the creation, development and reproduction of media and equipment, or even to recommend to stop purchase of media which are not suitable.

The economic institutes concerned with educational administration at various levels provide finance for the purchase of media; they establish contracts with suppliers, control their execution, survey the media in different schools, its condition, decide whether quantities should be increased and are concerned with financial matters etc.

The District and Regional National Committees have established an auxiliary body, the so called "advisory committees" for educational media which are composed of experienced pedagogues, who, under the guidance of the school inspector, or other educational administration personnel, recommend a selection of educational media to be purchased, follow up installation in various schools, how much already exists in the district or

region and present proposals to the authorities for increase or renewal of existing stocks.

On the basis of quantitative and qualitative analyses, the regional and district education authorities publish corresponding directives of an economic or pedagogic nature.

Country-wide analyses for a certain period, usually five years, serve the Ministries of Education as a base for preparing directives for the future activities of the national enterprises (Komenium in Prague and Ucebne Pomocky in Bratislava) in the fields of development, production and commercial activity.

IV

QUANTITATIVE DATA

IV

QUANTITATIVE DATA ABOUT THE PRODUCTION OF EDUCATIONAL MEDIA IN THE CSSR

The above mentioned ways in which schools are equipped with educational media enables :

a) central installation of all schools with media which is most urgently needed for teaching;

b) installation of more equipment according to special or individual needs of schools.

This fact influences the volume of production and deliveries of hard- and software. As a general rule, equipment which is classified for central delivery is produced and delivered to schools in a quantity which corresponds with the number of schools, classes or pupils for which it is destined. The volume of production and delivery of other educational media is usually defined on the basis of an investigation of demands.

4.1. STATISTICAL DATA ON EDUCATION IN THE CSR FOR THE YEAR 1976/77 (up to 15 September, 1976)

(a) Basic schools

Total number of classes of Basic schools :	44.488
LOWER LEVEL	
Pupils in the first classes	142.965
" " second "	135.876
" " third "	130.143
" " fourth "	131.368
" " fifth "	132.038
Total number of pupils in 1-5 classes	672.390
HIGHER LEVEL	
Pupils in the sixth classes	141.507
" " seventh "	145.446
" " eighth "	131.843
" " ninth "	103.451
Special final class	362
Total number of pupils in 6-9 classes	522.609
Total number of pupils in 1-9 classes of Basic schools	1.194.999

(b) Secondary schools

Grammar schools	210
Secondary Vocational and Technical Schools of different specialisation	135
Secondary Agricultural schools	83
Secondary Forestry schools	3
Pedagogical schools	19
Apprentice schools and Secondary Professional Training Institutions for Apprentices except Agricultural ones	471
Apprentice Schools and Secondary Professional Training Institutions for Apprentices in Agriculture and Forestry	175

Cost of Education in the Czech Socialist Republic represented 9% of the State Budget in 1976

4.2. PRODUCTION AND DISTRIBUTION OF SOFTWARE

Central distribution of media in the standard list (the "normative") for the lower grades of the basic schools is fixed by the Ministries of Education according to their budgets. Group material is sent to every school, or even to every class in one exemplar. Individual materials are sent for each pupil. The amount of media required for education in groups is, thus, proportionately lower.

The "Project for further development of the Czechoslovak educational system" takes into account that the lower level of basic schools will, in the years 1976-1980, dispose of 211 items of educational material to be used in the new curricula; they include:

three dimensional group material	28 items
three dimensional individual material	38 "
printed material for group work	56 "
printed material for individual work	12 "
slides	31 "
16mm films	17 "
8 mm cassette films	18 "
taperecordings	11 "

This software will be delivered as follows:

for each item of group material:		
- one per school foreseen	total	6.000 items
- one per class foreseen	total	8.000 "
for each item of individual materials for pupils :		
- when one item per pupil foreseen	total	140.000 "
- when one item per group or several groups of pupils foreseen	total	20.000 - 70.000

The volume of production and delivery procedure are the same for other types of schools.

Overall production for 1976 is given as an example of the volume of audio-visual materials produced for all types of school in the CSR.

	titles	copies
8 mm cassette film	9	20.050
16mm film	43	8.660
slides	135	78,750
slide-tape	25	14.380
taperecordings	37	23.540

4.3. PRODUCTION AND DISTRIBUTION OF HARDWARE

Schools are very well equipped with hardware. Quantitative surveys show how much equipment exists in schools and also whether the items are in good condition.

Every school in the CSR has a film projector, a tape recorder, a slide projector, a radio and a television set. All grammar schools and all secondary schools have language labs. Hardware, especially 16 mm film projectors, slide projectors, tape recorders, radio and television sets are usually delivered to schools by Komenium.

Overall yearly delivery of hardware in the CSR for the year 1976 was as follows:

16mm film projectors	150
8 mm film projectors	2.000
slide projectors	2.500
tape recorders	2.000
overhead projectors	1.300

In the SSR, the total hardware deliveries were slightly less. Schools can also buy hardware from retail shops.

The "Project of the equipment of schools with educational media for the period 1976-1990" presumes that, by 1985, all classrooms will be equipped with slide projectors, tape recorders and overhead projectors and that a school will have at its disposal (according to its size) up to three 16mm film projectors and four 8mm cassette film projectors.

Methods of supplying schools, number of items for each school, class or pupil is the same in both Republics.

Expenditure on education in the CSR represented 9% of the State budget in 1976.

THE PRODUCTION SYSTEM

V

THE PRODUCTION SYSTEM

5.1. PLANNING

The design and production of educational media, software and hardware is the responsibility of special departments in Komenium and Ucebne Pomocky (educational media).

Hardware and software being a sub system of the educational system are designed and produced according to the aims and methods of education for youth in a socialist country, They are closely related to textbooks, which, in turn, they influence.

Production of educational materials is a complex process; it does not consist simply of writing, manufacturing or administering isolated (single) items.

Production is based on long term development plans for school equipment. A "Project for equipping schools with hard- and software" has been worked out for the next ten to fifteen year period. It is based on an assessment of the results of basic research, educational practice and requirements.

Long term planning takes into consideration both budget and production capacities. The plan reflects priorities which are expressed in standard equipment lists, the normatives. Thus, production of software (i.e. printed material, slides, films) can be planned and disproportions between development and implementation avoided whilst maintaining initial objectives. There is sufficient flexibility in the system to cope with initial needs.

Educational scientists and teachers cooperate in drafting long term development plans and the annual production plan. Propositions are discussed by Technical committees which are advisory bodies set up within the research and development departments of both Komenium and Ucebne Pomocky.

Members of the advisory committees are :

- educational scientists;
- authors of textbooks and members of teacher associations;
- experienced teachers.

Committees are set up to deal with the different disciplines in the overall education system or for groups of disciplines for technical education. Teachers participate in testing the material and in reviewing it.

The most important general problems, such as long term planning, development of sophisticated apparatus, orientation of research etc., are dealt with by a "Pedagogical and Technological Committee" which reports to the Director of Komenium.

According to the annual plan, a list of items to be produced is drawn up in the "Committee for Content and Approval" This committee is made up of the senior staff (vice directors) of the educational technology, commercial, financial and administrative departments and the heads of the production sector. It is headed by the Vice Director for educational technology.

Specialists for each medium prepare the following data for the committee:

- pedagogical and technical specifications - characteristics, including a technical description, the place of the medium in the multimedia system, a comparison with existing media;
- indications on the technical design and production procedures as well as an estimation of development costs;
- propositions for the volume in which the medium is to be manufactured and the way in which it will be supplied to schools.

During the meeting, the educational media specialist gives reasons why the particular medium is required and indicates expected educational or instructional effectiveness which is, in turn, matched with the cost of the provision to all schools.

5.2. ORGANISATION

Production procedures for a given medium differ according to its type. However, in all cases, an educational media specialist follows through the whole production process.

From a technical and production point of view, educational material and equipment falls into the following categories:

- media :
  - three dimensional: realia, models, instruments (kits both for individual and group work);
  - printed : wall pictures, charts, pupils' instructional papers, material for magnetic boards, maps transparencies;
  - slides, filmstrips;
  - films (16mm, 8mm)
- educational equipment with attachments
- equipment for special classrooms and laboratories;
- machines and tools for practical training;
- furniture and equipment needed for physical training;

Toys for pre-school education and equipment for out-of-school activities are classified separately.

5.2.1. Tri-dimensional media

Production is executed under the control of the research departments of the manufacturing enterprises according to educational and technical specifications. Artists cooperate in the design of artistic software, e.g. for pre-school education.

If a prototype has been proposed by a teacher, the development is the task of the research section of the manufacturing enterprise, in order to take advantage of the more advanced production technology available.

The prototype, methodological text and technical operating instructions are then submitted for approval.

5.2.2. Printed material

Development is carried out in cooperation with creative artists, technicians and teachers. Under the guidance of a media specialist, they produce material according to the educational and technical specifications provided. The master copies of all pictures, photographs, graphs, transparencies etc., are submitted for approval, as are texts and illustrations for materials for pupils' individual work.

School atlases are edited (according to a long term publishing plan) by the national enterprise "Kartografia". The educational specialist in charge participates in the cartography.

The first galley proof is then submitted for approval.

5.2.3. Slides

Using the technical data available, the educational media specialist or author draws up a sequence of scenes to be illustrated and an accompanying text. This is the basis upon which production procedure is determined; use of existing materials from the archives, or new photographs and drawings. Materials are re-photographed in the company's studio and the film laboratory prints a master copy from the negative. The master copy and accompanying text are then submitted for approval.

5.2.4. Sound recordings

Sound recordings are based on scripts written by outside specialists. Those requested to write audio-oral programmes for language teaching are usually authors of textbooks. An original tape is recorded in the company's studio and external speakers are used. In some cases, recordings of radio brodcasts are used. A copy of the original and the accompanying text are then submitted for approval.

If a record is to be made, the script, which is handed over together with a production order to the recording company, has to be approved. An original is recorded on tape, which, after discussion and eventual modifications is approved and then reproduced on record.

5.2.5. 16mm and 8mm film

The specialist, who is usually a film producer, drafts a synposis according to the educational and technical data provided. This is handed over, together with a production order to the "Czechoslovak Film" whose creative units for school film make a master copy. The editorial council for school film has to approve both visuals and sound track. Members of the technical committee in charge are also present at the deliberations. The final version is then produced.

5.3. PROCEDURES FOR APPROVAL

Throughout design and production phases, software is discussed in specialist committees. Prototypes (originals, copies) are subject to review and eventually tested in schools.

The reviewed prototype is discussed again in the specialist committee which, after a general appreciation, recommends the software for approval or not.

The educational media specialist responsible for that particular item then makes a proposition for acceptance, together with his opinion of the viewpoints of the reviewers and specialist committee.

The proposition for approval of the software states its characteristics and gives reasons for any changes in the original design. This information and operational data are meant primarily for the company's trading department and advertising.

All propositions for approval are discussed by The Content and Approval Committee, where the final product is demonstrated. The committee compares it with the original design and decides whether its function, appearence and other indications correspond to the specifications and to safety regulations.

Besides their own software, the other materials for school are submitted for approval. Educational specialists comment on them and thus influence their production,

After approval and eventual modifications, the prototype is handed over to the manufacturing sections of Komenium or Ucebne Pomocky for production.

Educational media specialists give their opinion on the first sample, make proofs of the printed texts, give their opinion on technical and production conditions and also participate at random, in technical assessment of products.

It follows from what has been said that an educational media specialist must be able to deal with all problems raised in this chapter. He must not only have the necessary educational know-how but also be competent in the fields of technology and film making and, of course, have an eye for the aesthetic. He must be capable of researching a broad range of subjects, directing authors, using the experiences of his external collaborators, and eventually designing software himself. He must know about software production in his own and in other countries. He participates in testing new material, lectures on it and publishes. He consults the trade department about installation of equipment in schools and

makes surveys on its use therein. As he is in constant contact with teachers, he gains further experience in design and production of software.

5.4. DESIGN AND PRODUCTION OF HARDWARE

Pedagogical, didactic and technical specifications for audio-visual equipment are prepared in the Komenium audio-visual centre in close cooperation with the J. A. Comenius Pedagogic Institute in the Czechoslovak Academy of Sciences, the educational research institutes, vocational educational research centres and Ucebné pomocky.

There is a long standing tradition of cooperation with the Educational Material Institute of the Academy of Science in Berlin in the development of audio visual equipment in the CSSR. This collaboration covers not only development itself, but also extends to the fields of manufacture

Development of this kind of equipment is also supported by a specialised expert committee which functions as an advisory body. Its opinion is taken into account when approving use of a given piece of equipment in schools.

Technical developmant proper is organised in the research departments of production companies, where optimum conditions exist for securing the maximum rate of technological development and its application to the teaching process.

Much audio visual equipment, such as slide projectors, synchronised cassettes, projectors, cameras, 16mm film and super 8 film cameras, televisions etc., is imported.

5.5. MANUFACTURE OF EDUCATIONAL MATERIALS AND EQUIPMENT IN THE CZECHOSLOVAK SOCIALIST REPUBLIC

The national enterprises Komenium in Prague and Ucebne pomocky in Banska Bystrica, whose task is to supply schools with educational materials and equipment, do not have their own manufacturing facilities. The main reason for this is that industry in the CSSR is so technically advanced that it is in a position (besides ensuring supply of consumer goods in its own

manufacturing programmes) to meet the specific requirements of schools in the field of educational materials and equipment.

Amongst the manufacturers of audio visual equipment, are the big production units of national enterprises on the one hand, and smaller companies directed by the previously mentioned national committees on the other; a significant rôle in ensuring supply of equipment is played by the production cooperatives.

One of the biggest and best known manufacturers is the national enterprise TESLA which produces school tape recorders, televisions, record players, language laboratory equipment and also the national enterprise MEOPTA which supplies projectors for educational films and 8mm cassette film projectors. It is with these goods that MEOPTA ranks amongst the most advanced producers of quality audio visual equipment in the world. MEOPTA also produces epidiascopes and other sophisticated instruments.

Cartography is concentrated in the national enterprise KARTOGRAFIA. Wall charts and pictures are produced in printing houses throughout the country.

Production of educational films is concentrated in the national enterprise CZECHOSLOVAK FILM. A special section - SHORT FILM (Krathyfilm) - in Prague has been built up as a centre for educational films. In the SSR, this function is undertaken by FILM CREATION in Bratislava. During their forty years of existance, SHORT FILM and FILM CREATION have risen to a prominent place in the field of educational film production. Mass reproduction of films is undertaken by FILM LABORATORIES, who also reproduce slides and slide-tape series.

Concentration of production in these specialised companies offers a number of advantages

Products are designed on the basis of modern technology, using up-to-date components in most of the apparatus. Ordinary components from the production sector are used, which makes it easier to obtain spare parts for maintenance and servicing; the equipment has to meet the requirements of the Czechoslovak State Standards Board as far as security and operational reliability are concerned; design is thus of good quality and fulfills

aesthetic and security requirements.

Maintenance and repair is carried out by the production works.

There is also the negative side: i.e. production capacities of smaller companies are not able to meet the requirements of educational institutions; when dealing with bigger companies, Komenium and Ucebne Pomocky are obliged to order the equipment in quantities compatible with economical production requirements.

One way to solve this problem would be to develop international cooperation between the CSSR and the other socialist countries.

Such cooperation can be established if long-term projects are drawn up and agreement reached on design and compatibility of educational and technical specifications. It is hoped that coordination of media production plans will be achieved in the near future.

Cooperation in manufacturing is based on bilateral and multilateral agreements between industrial production organisations. Mutual trading contacts are maintained with foriegn trade organisations.

The above mentioned facts have also confirmed that the approach to educational technology in the CSSR and the German Democratic Republic are identical. For example, MEOPTA at Prerov produces the film projectors for the two countries, whilst PENTACON in Dresden supplies all the slide projectors.

Another example is the cooperation with the industrial organisations in the Hungarian People's R public which produce challenging media for physics teaching. A number of other products are imported within the framework of mutual commercial contacts and trade agreements. Here, the task is to increase production capacity and improve the variety of equipment available.

Komenium and Ucebne Pomocky work out the plans for installation of equipment in classrooms, especially for closed circuit television, language laboratories and feedback classrooms.

Recently, considerable amphasis has been placed on training teachers working with educational materials and equipment in schools as well as on ensuring repair and maintenance of equipment.

5.6. THE ROLE OF SPECIALISED INSTITUTIONS: KOMENIUM AND UCEBNE POMOCKY

The organisation of design, production and installation of equipment in schools is the responsibility of the federal system of government of the CSSR. For schools in the CSR, this is carried out by Komenium in Prague; for the SSR, by Ucebne Pomocky in Bratislava. These enterprises cooperate in matters common to both republics.

The main task of these two organisations is to equip schools and educational institutions and is carried out in the following way:

- they develop the required equipment, software and hardware and carry out relevant applied research;
- they ensure production and delivery of different media and equipment for schools;
- they provide schools with special services: fitting out projection rooms, storage space, special classrooms and laboratories and deliver the corresponding equipment;
- they cater for installation, repair and maintenance
- they approve the media for all kinds of educational institutions, nurseries and extra mural institutions;
- they edit and establish standard lists for software, audiovisual hardware, equipment for science teaching and laboratories for schools.
- they assist schools in the development and production of their own material;
- they provide teachers with methodological information to help them use the equipment in the best way;
- they organise exhibitions, both at home and abroad.

Both organisations are independant economic enterprises sui generis: they devote their activities to the aims and needs of the State education policy.

They cooperate with research institutions for education and with the Research Institute of Technical Education and with institutions for further teacher training.

They use the experience of their voluntary collaborators amongst whom rank theoreticians and teachers. In order to achieve a more effective link with daily life, they have both established a "Technical educational council" and "technical committees", whose job is to comment on new designs within the mandate of the enterprise and problems of design, development and research on educational media.

The directors determine the internal structure of the organisations, the authority of each department and their mutual relations (see annex no.7.)

Komenium and Ucebne Pomocky sell not only equipment, hardware and software to the schools, but also toys to kindergartens, calculating machines, transparencies for overhead projectors, slides, slide tape series, audio oral programmes, films and equipment, instructional booklets which assist the teacher in using the equipment.

Besides catalogues and the usual forms of commercial advertising, audio visual information centres are in charge of the promotion of the software and hardware supplied by Komenium and Ucebné Pomocky. A Centre like this has been established in Prague and a similar one in Bratislava by Ucebne Pomocky. These centres organise exhibitions of local, as well as foreign products, national and foreign professional literature and reliable technical and economic information. The centres also organise instructive methodological courses for teachers. Similar centres will gradually be set up in the different regions of the country.

5.7. MEDIA PRODUCED IN SCHOOLS

All schools in the CSR and SSR have a sufficient quantity of educational media at their disposal, designed and produced professionally in specialised institutions, national enterprises

and productive cooperatives. Inspite of this, many teachers use materials they have created themselves during teaching practice. Such material is produced in small quantities in the school workshops or production centres controlled by branches of the National Committees. Approval for its use is given by the headmaster or the district national committee.

From this emerge a number of valuable educational materials which bridge the gap between materials available, particularly in the case of very specialised subjects. In school workshops, vocational training centres, specialised secondary schools, universities and technical colleges can be seen a number of materials usually created on the suggestion of specialists by trainers, together with students and apprentices within the framework of training programmes or out-of-school leisure time activities. The teachers in nursery and primary schools also design small educational aids which they test in their own teaching practice. The importance of such aids is regional in the first place; they help to bridge the gap between school and pupils' environment and surroundings etc. In some cases, they become an addition to the experimental activities of teachers and a result of their pedagogic creativeness.

This decentralised creation of material is a rich source for media development. The school administration supports these initiatives. Displays and competitions are arranged at which the most successful materials produced in this way are exhibited. Any material which corresponds with the prospective overall design for the country are taken up by the specialised producers and put into production after purchase of copyright. In this way, Komenium and Ucebne Pomocky acquire the authors of suggestions for software and hardware from amongst experienced teachers.

5.8. PRODUCTION OF MEDIA IN OTHER FACTORIES

In many other factories, an independant "school production programme" has been developed, e.g. in the furniture industry for production of desks, blackboards, physics, chemistry and biology teaching equipment and for special classrooms for technical training. Other factories produce musical instruments, gymnastic

apparatus and equipment conforming to specifications for children, including those who are physically handicapped and psychologically retarded, or those with sight and hearing defects.

The democratic principle in equipping schools gives the factories a large consumer public, because equipment is delivered to all schools, even those in remote towns and villages and is free of charge.

5.9 TEXTBOOK PRODUCTION

Specialised publishing houses, i.e. the State Pedagogical Publishing House in Prague and the Slovak Pedagogical Publishing House in Bratislava edit textbooks for general education subjects and books concerning education.

The State Publishing House of Technical Literature and many others, publish textbooks and books for technical subjects taught in technical colleges and apprentice schools.

Book stores deliver textbooks to schools through the intermediary of the Regional Distribution Centres.

VI

PROVISION AND DISTRIBUTION

Education in the CSSR is free of charge. Schools are state run and based on the principles of democracy, uniformity and of linking school with daily life. All these principles are reflected when supplying educational institutions with educational material and equipment.

In the case of primary and secondary schools, the main suppliers are Komenium in the CSR and Ucebne Pomocky in the SSR.

For universities and/or technical colleges, the list of suppliers is substantially longer, and includes a number of specialised organisations in the engineering, electronics, sanitary chemical industries and a number of scientific research and development organisations. Universities and technical colleges are allocated a certain budget for import of equipment from abroad.

Komenium and Ucebne Pomocky work on a commercial basis. They order and purchase equipment from manufacturers. Equipment is then supplied to schools on a commercial basis. The biggest percentage of equipment is purchased from the two enterprises out of the state educational budget i.e. the budget of the Ministries of Education of the CSR and SSR and the national committees.

The provision of materials and equipment to educational institutions has developed parallely with the educational system over the last thirty years. At present, three fundamental methods of distribution exist : (see annex no.8.)

1. Central Distribution

Materials and equipment delivered in this way are ordered by the Ministries of Education from Komenium and Ucebne Pomocky and paid for out of the education budget. The Ministries of Education thus ensure that all educational institutions for which the materials and equipment is destined have it at their disposal. Pictures, elements for magnetic boards and audio-visual media are usually supplied globally, all at the same time. For tridimensional materials, if their full production cannot be undertaken in one year, they are supplied over a two to three year period. The enterprises keep records of deliveries so that they can ensure full installation.

At the present stage of implementation of the "Scheme for further development of the Czechoslovak educational system", a significant part of central distribution is represented by those media which are needed in teaching the new curricula (in 1976 materials for the first class of primary schools; in 1977 for the second class; in 1978 for the third class). In this way, installation of all schools will be undertaken consecutively so that they will have a full range of all material needed for the activities contained in the new school curriculum and in quantities corresponding to the number of classes and pupils.

The educational media corresponding to the former curriculum continue to be re-edited so as to complete the provision of schools up to the required level. Selection of material and equipment coming under the central distribution scheme is the joint responsibility of the Ministries of Education, Educational Research Institutes in Prague and Bratislava and the two enterprises.

Under the central distribution scheme, equipment is installed as per the approved schedules; this also applies to nursery schools, upper classes of primary schools and secondary schools where new curricula will be used in the near future (see timetable in annex no.2.).

16mm educational films are supplied to the educational film centres in all regions through the central distribution scheme, from whence the films are sent on loan to schools free of charge. Super 8mm cassette films on the other hand, are supplied directly to schools so that teachers can build up their stocks of films for individual tuition subjects.

Every year, the Ministres of Education in the CSR and SSR conclude delivery contracts with the two national enterprises for delivery of the selected materials and equipment to all educational institutions according to an approved schedule. An invoice for the total cost is then presented to the Ministries of Education.

2. Regional delivery scheme

This is the second centralised method of supplying schools with equipment which has been ordered :

- by the regional national committees for secondary schools (with the exception of vocational schools controlled by departments other than the Ministry of Educatinn);
- by the district national committees for nursery, primary and extra-mural institutions.

The regional and district national committees concentrate their finance on supplying more expensive pieces of equipment to schools. In this case, successive deliveries are spread over several years. This makes it possible for the national committees controlling this type of school to install equipment in a planned, staggered manner, according to their size and specialisation etc.

Lists for supply of such materials and equipment are worked out by the two enterprises and sent jointly with the opinion of the educational research institutes to the Ministries of Education for their approval. Delivery contracts are then concluded for supply within the framework of the central delivery system with the different national committees. Materials and equipment are dispatched directly to schools as per schedule and the invoice for the total cost presented to the national committees concerned.

At the district level, the educational administration organises the so called "district material centres" which are in contact with Komenium and Ucebne Pomocky and which keep records on the state of installation in the various educational institutions under their jurisdiction. The district centres take care of furnishing the schools with basic material for lessons and with trifling items; some provide also repair and maintenance services. In districts where the material centres have already been established, the equipment from Komenium and Ucebné Pomocky are supplied to the schools through them; in this way, properly planned installation is facilitated.

3. Individual order scheme

In addition to the above mentioned methods, there also exists a third, based on individual orders sent directly by the schools to the two enterprises. Every year, Komenium and

Ucenbe Pomocky send catalogues and equipment lists to the schools. These lists give information about equipment not included in the central distribution mechanism. The following items are offered:

- for kindergartens: all approved toys and games (Kindergartens come under the jurisdiction of the Ministry of Health which does not provide them with a central distribution scheme);
- for nursery schools: new games and toys, and those included on the central distribution list. This is necessary in view of the continual development of the network of nursery schools due to the demographic expansion in the CSSR;
- for primary schools, secondary schools and technical schools: materials already supplied by the central distribution and regional delivery system, to complete, extend or renew basic collections;
- for vocational education: all materials and equipment needed for general and vocational instruction, because these schools are controlled by authorities other than the Ministries of Education and, as yet, no central distribution has been arranged for them. The establishments for apprentice training are supported by relatively wealthy financial bodies who are in a position to place individual orders. However, in accordance with the gradual implementation of the "Project for further development of the Czechoslovak educational system" conditions are being created for the introduction of a central distribution scheme for these schools and for secondary schools. This means that, in the future, these schools will be supplied in the same way as the others.

Individual orders for some equipment are also sent to the enterprises by universities, technical colleges and adult education institutions. Part of the devices from the standard list for primary schools are also supplied under the central systems. Pedagogical Faculties in charge of primary teacher education.

Schools and educational institutions send their orders directly to the two enterprises on the basis of the catalogues and lists. Finance is granted to the kindergartens, nursery schools and primary schools from the allocations of the municipal councils. Secondary schools, technical colleges and universities have their own budgets. In addition, there are some social organisations, for example Parent associations, Friends of School, local enterprises who allocate funds for equipping and modernising schools, on their own initiative. Such sums are in no way significant in comparison with the total educational finance budget, but nevertheless, they bear witness to the vivid interest of the public in schools, their activities and working methods.

Komenium and Ucebné Pomocky supply equipment from their central warehouses in Prague and Banska Bystica. However, both are building up a network of retail shops in different cities. These shops will also serve as information and methodology centres.

The above mentioned system has proved efficient, mainly because it has developed into a method for:

- allocation of materials for individual group work, free of charge;
- evenly distributed installation of equipment in schools, school offices, workshops and laboratories;
- placing audio visual and audio oral programmes within the reach of all schools, in both towns and villages.

This system also makes it possible for the Ministries of Education to supply schools with uniform basic equipment and, usually, all in one go. It also allows national committees to increase the amount of equipment in schools administered by them, taking into consideration the size and specialisation of the schools, their experimental functions, the extent and orientation of optional classes, non vocational activities etc. It also makes it possible for all sorts of schools to complete and renew their media collections.

Finance for free provision of textbooks has a separate and independant place in the State educational budget; their distribution to schools is made through wholesale booksellers.

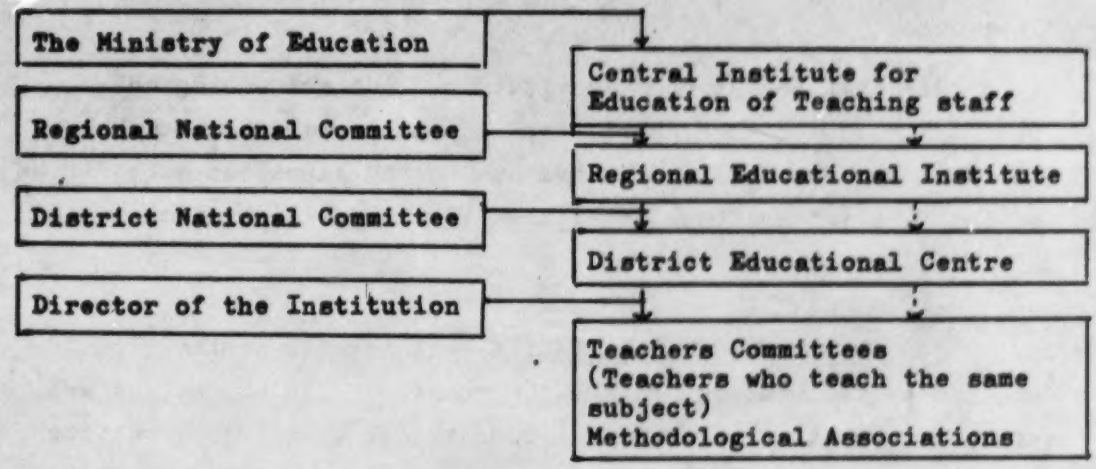
However, successful work with audio visual media - both operation of equipment and utilisation of programmes - depends not only on the availability of good quality soft and hardware, but also on the abilities of the teacher himself and his skill in using the media.

VII

FURTHER TRAINING OF EDUCATIONAL PERSONNEL

ORGANISATION

An institutional system for further teacher training exists in the CSSR; it has three levels. Each level of training falls under the jurisdiction of the relevant competent body of the education authority. These are :


The Ministry of Education
Regional National Committee
District National Committee
Director of the Institution
Central Institute for Education of Teaching staff
Regional Educational Institute
District Educational Centre
Teachers Committees (Teachers who teach the same subject) Methodological Associations

Key to relationships:

_____ administration

.... methodological assistance

1. CENTRAL INSTITUTE FOR TRAINING EDUCATIONAL PERSONNEL

This is an institute for educational science under the jurisdiction of the Ministry of Education. It offers scientific research activities in the field of further training of teachers. It regulates post-graduate study for teachers, publishes methodological instructions, coordinates publication of professional literature and directs the Regional Educational Institutes.

2. THE REGIONAL EDUCATIONAL INSTITUTE is a special educational institution under the auspices of the Regional National Committee. It undertakes organisational, educational, analytical and guidance activities. It assists directors and teachers in schools administered by the Regional National Committee, in raising the level of teaching. It helps regional education authorities in

the training of recently appointed school directors and their deputies and of new teachers being introduced to teaching practice. It organises instructional and methodological assistance when new curricula, textbooks, equipment etc., are being applied in practice. The Institute is divided into departments for educational phsychology, school administration, different disciplines etc. There is also a teaching cabinet (resource centre). The regional school film loan centre is part of the Institute.

Regional Educational Institutes provide methodological assistance to teachers committees in schools administered by the Regional National Committees and to the education authorities of the District National Committees in the administration of the District Educational Centres.

3. THE DISTRICT EDUCATIONAL CENTRE is a special institution created by the District National Committee. Its objectives are similar to that of the Regional Educational Institutes, but its activities are aimed at directors, teachers and methodological associations and subject committees of the schools administered by the District National Committee. The centre is divided into departments i.e. for pre-school education, primary education, subject matter etc. There is also a teaching cabinet. The district school films loan office is part of the District Educational Centre.

4. THE METHODOLOGICAL ASSOCIATIONS and the Subject Committees are, in fact, groups of teachers with the same or similar specialisations who, under the direction of experienced teachers, pass on their knowledge of teaching to the younger teachers. They coordinate the introduction of new curricula, textbooks and teaching media into the educational process. In accordance with the directives of the school directors and with the help of the District and Regional Methodological workers they organise practical seminars and briefings in schools.

Methodological and information centres run by Komenium Prague and Ucebne Pomocky, Bratislava.

In the field of educational media, the different institutions in the state educational system for further teacher training cooperate with Komenium and Ucebne Pomocky. The main information

centres of each enterprise present information to the public about production of educational media in Czechoslovak and abroad; organise exhibitions of media both at home and abroad; make available pedagogical and technical information to those visiting the exhibitions; inform the sections of the enterprise dealing with development, trade and commerce of the opinions of those visiting the centres. These centres organise seminars on theoretical and practical questions on the use of media and their application in the teaching process.

In these centres there can also be found a section dealing with technical and economic information on educational media. It provides information not only to the staff of the enterprise, but also to other interested people in schools, research institutions etc. It centralises and classifies foreign literature and patents taken out on equipment. It helps the regional information centres in their work. Both enterprises are establishing regional information centres in regional capitals. Their task will also be commercial (they are in close contact with retail shops) informative and instructional. To a lesser extent, they organise exhibitions - usually monothematic - with commercial, educational and technical information about the variety of media supplied by them. They cooperate with the relevant departments of the state system for the further teacher training or, if need be, with higher educational institutions.

VIII

MASS COMMUNICATION

8.1. SCHOOL RADIO BROADCASTING

The general aims and objectives of education are reflected in the school radio programmes of Czechoslovakian radio. School radio programmes are, therefore, a means by which the quality of teaching is supported. They offer the teacher and pupils stimulations for the educational activities in the school. School radio programmes integrated with the other educational media and the educational methods motivate and direct the creative activity of the pupil. The advantage of radio programmes is their influence on the imagination of the listener. The programmes supplement and update the information contained in textbooks, particularly for social sciences, and contribute to the development of the intellectual and moral attitudes of the pupil.

Czech broadcasting prepares live programmes for nursery schools and for the first to fourth class. For the higher levels of the primary school and for secondary schools, programmes are broadcast to be recorded by the school phonothèque.

Besides this, there are programmes for literary and linguistic education. They are broadcast out of school hours.

The volume of live broadcasting for schools is 265 minutes per week i.e. about 53 minutes per day.

Programmes for nursery schools influence the development of imagination and speech in various ways. They assist in memory training.

Programmes for the first to the fourth class of primary school are presented in four series, thus offering the teacher a broad choice for use in his lessons.

The educational series "We learn with the broadcast" is composed of educational and popular programmes for specific subjects (Czech language, general knowledge, geography, maths music). They are based on present curricula and conceived for children. The broadcasts are used in conjunction with written and illustrated materials printed in the childrens' magazines, "Sunshine", "Thyme", and "Fire".

The ideological educational series "Life around Us" is devoted to notable events and anniversaries. This kind of programme contributes to the ideal of linking schools with daily life.

A regular daily broadcast "Let's exercice with the radio" aims at developing physical health and mental activity.

The majority of these programmes are meant to be used during lessons. (Only selected programmes marked in the methodological pamphlets are meant for the school phonothèque).

For the higher classes in primary schools and for secondary schools, programmes for the school phonothèque are broadcast. In length, content and object, they fulfill the function of an audio document. By taking advantage of authentic audio materials from political , economic and cultural life, schools acquire documentation otherwise inaccessible to both teacher and pupil.

The teachers work with the recorded programmes to the extent required by each particular subject, available teaching material, their own abilities, as well as the capabilities of the pupils. Every year, the schools are offered one or two programme serials of about ten programmes each for various subjects for the purposes of illustrating and intensifying what is being taught.

8.2. TELEVISION PROGRAMMES FOR SCHOOLS

Television programmes for schools in Czechoslovakia are complementary to the teaching-learning process. The programmes are produced in line with the curricula. The specific possibilities of television are exploited and the fact that, at present, only direct transmissions can be followed practically in schools is taken into consideration. The target audience for programme production is, therefore, the first to fifth classes of primary schools and civics and literary education in the sixth to ninth classes. Other programmes diffused in the afternoon can be viewed by the pupils either in the school club or at home as part of their homework. The teacher can then use the information transmitted during these programmes in his lessons.

TV plays a significant rôle in training and educating young people, in motivating and stimulating a desire for knowledge, as well as in creating the abilities to accept and use audio visual information.

Nine series of television broadcasts are available for schools for the school year 1976/77; five of them are transmitted in the morning and four in the afternoon. One of the afternoon programmes - a preview of more challenging programmes from the point of view of content and methodology - is for the teacher.

Programmes for the first class of primary school are available for the following subjects : Czech language, mathematics, general knowledge, geography and aesthetic education.

As television programmes never take up more than 50% of lesson time, the teacher is able to integrate the programme into his lesson, using it to enhance his traditional working methods.

C O N C L U S I O N

Providing schools with educational media, software and hardware is one of the most important facets of educational policy in the CSSR. Design, production and supply of educational media to schools is closely linked to the objectives and content of the teaching-learning process. The specialised enterprises which undertake the design, production and delivery of this media are directly controlled by the Ministries of Education of both Republics and cooperate to this end with organisations for educational research, pedagogues, specialists and teachers.

School supply is based on the main principles of the CSSR educational system: i.e. those of state controlled education, democratisation of education and linking school with society.

Three main supply mechanisms exist: central distribution financed by the Ministries of Education; Regional deliveries, financed by the Regional and District National Committees; individual purchase by schools of equipment chosen from catalogues and lists. This makes it possible for:

- the Ministries of Education to simultaneously install the same type and amount of equipment in each school, in order to maintain the homogeneity of the educational system;
- the National Committees and heads of schools to supplement, extend or specialise the equipment in schools in their area, district or town, according to their respective requirements.

This system for supply of educational media was not built up in an isolated fashion, but in close cooperation with the economic policy of the country, with general educational development, with further teacher training, elaboration of curricula, school policy and textbooks. The development of hardware, specially equipped classrooms, laboratories and multi-media rooms has been matched with future architectural design of new school buildings.

In spite of the fact that responsibility for supplying the schools with educational media lies with the specialised

national enterprises, Komenium and Ucebné pomocky, parallel support for decentralised production of media does exist - for very specialised subjects, for research and development and for topics of a regional character. The pedagogical inventiveness of teachers in this direction is also a rich source of suggestions for the professional design and creation of educational media.

The "Project for further development of the Czechoslovak educational system" stresses that the use of modern educational media is one of the pre-requisites for the modernisation of the educational system and its subsequent increased effectiveness.

ANNEXES

1. Organisation chart of the proposed Czechoslovak education system

2. Chart of the gradual introduction of new curricula in the Czechoslovak education system in elementary and secondary schools

3. Organisational chart of institutions

4. The multimedia system

5. a) Survey of hardware
   b) Survey of the recommended hardware for nine-year elementary schools
   c) Survey of the recommended basic hardware for general subjects in secondary schools

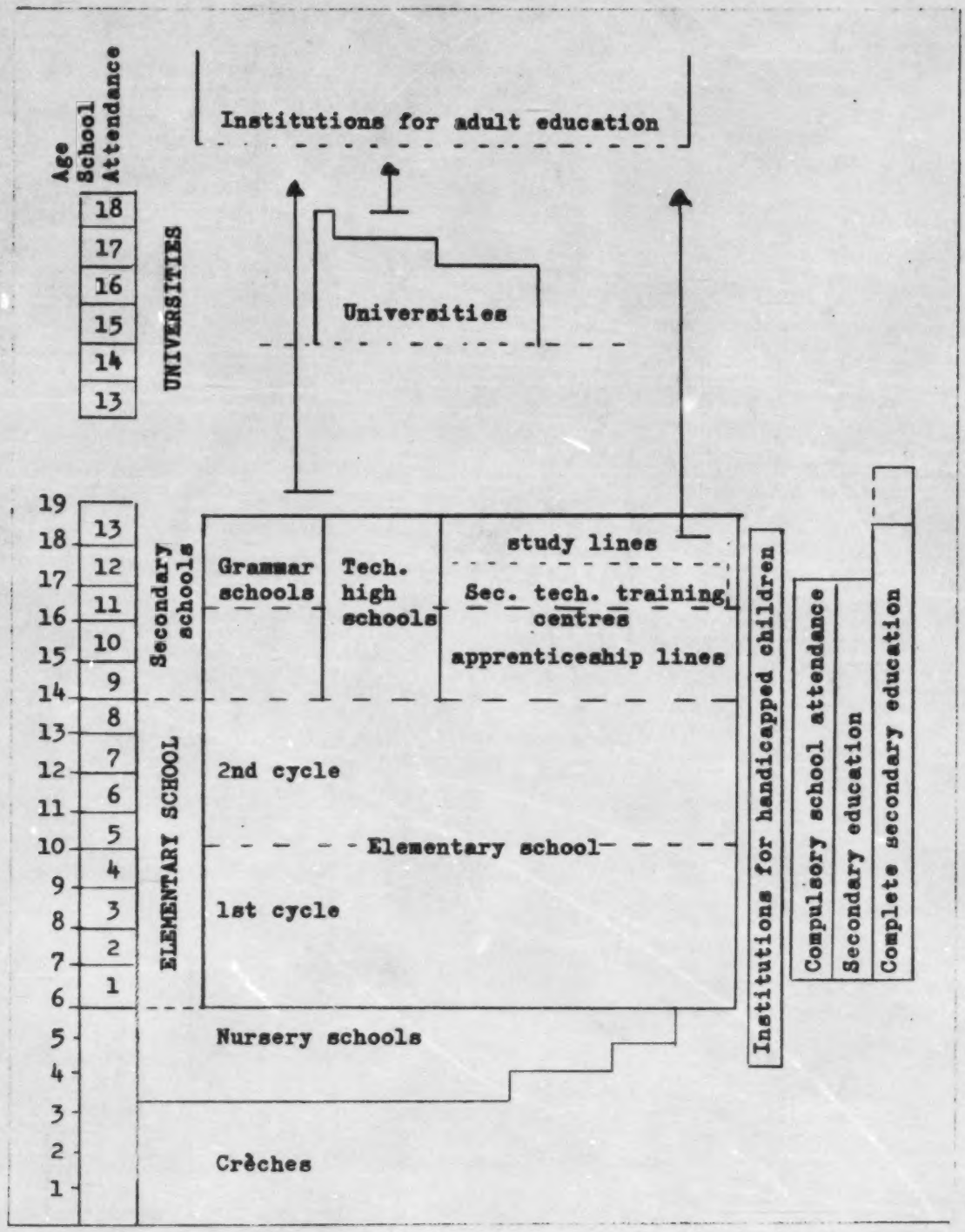
6. Special classrooms for audio-visual communication (I-IX)

7. General organisation chart of Komenium in Prague and Ucebné Pomocky in Banska Bystrica

8. Chart of central distribution

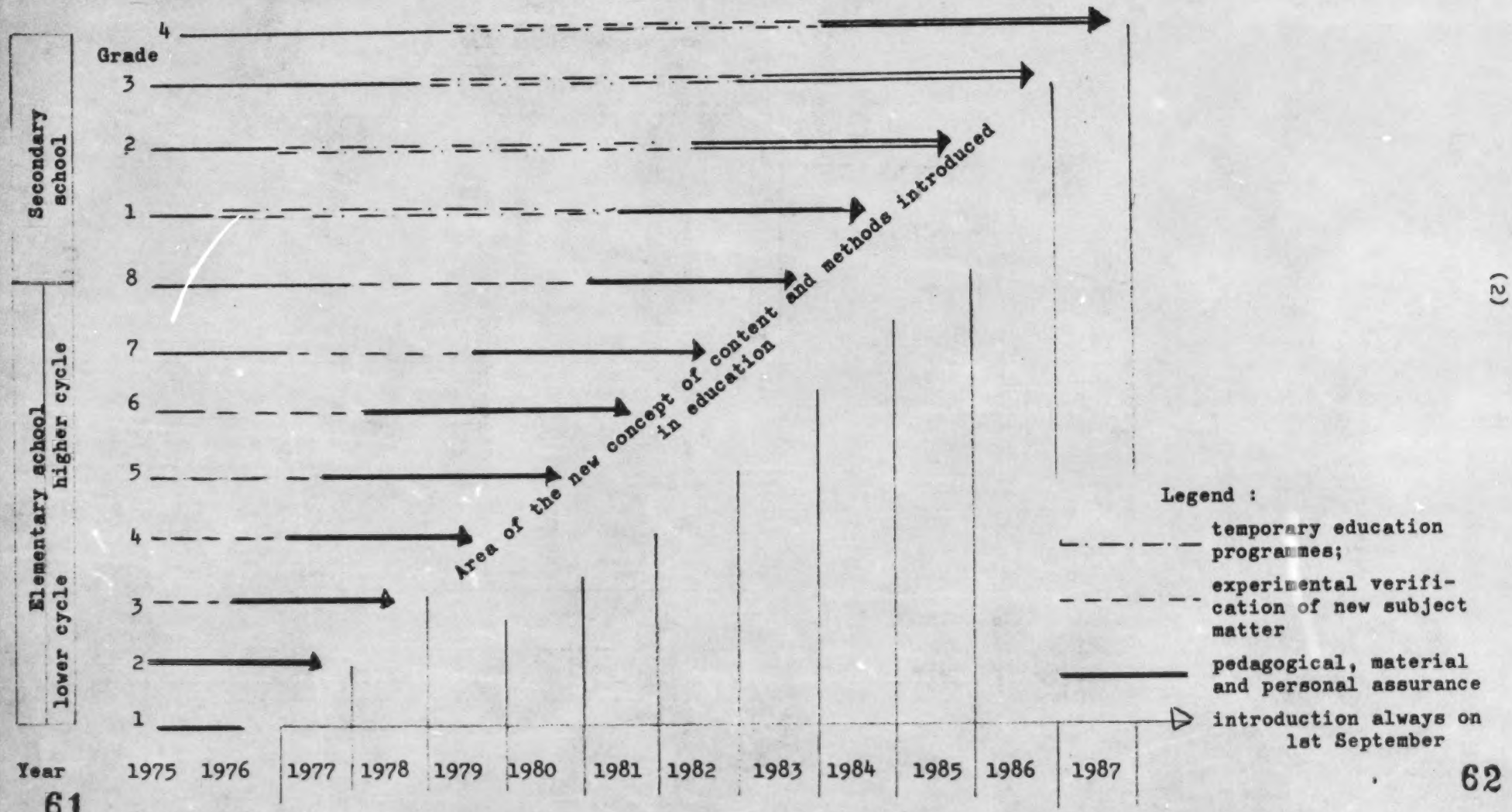
BIBLIOGRAPHY

Organisation chart of the proposed Czechoslovak education system



Annex 2

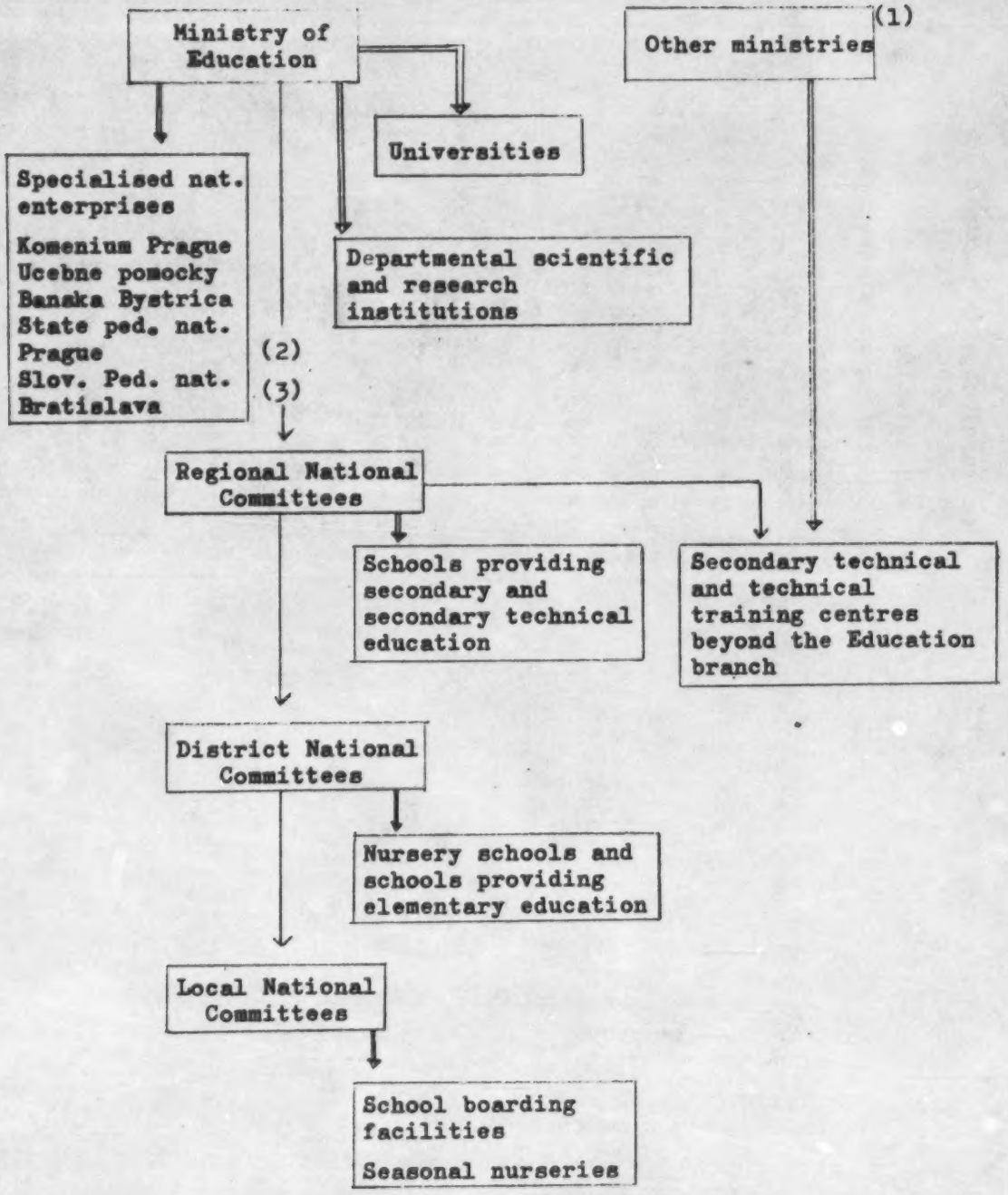
Chart of the gradual introduction of new curricula into the Czechoslovakian education system in elementary and secondary schools.



(2)

Annex 3

Organisational chart of institutions



Legend:

——— indirect control
═══ direct control

(1) Ministries whose scope includes apprentices for trades and Ministry of Public Health, administring secondary schools for health workers;
(2) State Pedagogic Publishing House
(3) Slovak Pedagogic Publishing House

Annex 4

The multi media system

Curricula	Textbooks	Teachers guides

SOFTWARE				
natural objects, models for observation manipulation sets pupils' printed material pupils' slides sound records	natural objects, model presentation equipment for experimentation pictures, sets of pictures maps transparencies, sets of slides transparent items 8 mm silent film in cassettes tape recordings records radio programmes sound slide 16mm sound film television	Audio-oral programmes Feedback programmes		
HARDWARE				
viewer tape recorder, earphones	slide projector overhead projector Super 8 film projector tape recorder record player radio sound slide comm. 16mm projector TV set	Language study earphones Feedback communication (console)	Projector stands Screens Loundspeaker sets	

Equipment for audio visual presentation

Front wall in the classroom, strips and stands for pictures and maps, blackboards and magnetic blackboards.

Teacher's demonstration desk or desk with automatic control of a-v equipment, feedback control desk

Pupils' place for observation and manipulation eventually part of the feedback communication

Equipment for storing hardware

Shelves for pupils' materials in cabinets in the classroom.

Cabinet space with trays, drawers and shelves in special rooms and studies, special cases for pictures in classrooms and hangers for maps

Equipment of the storage spaces in distributed in keeping with what is needed in accordance with norms to ensure time economy in the teacher's and pupil's work.

Annex 5a

Survey of Hardware

Channel of Communication.	Devices for Presentation.	Software
auditive	tape recorder	tape recording
	gramophone	disc
	radio set	radio programme
visual	slide projector	slide transparency
	overhead projector	transparent item transparent model written text
	silent film projector (KP super 8)	silent film (cassettes)
	episcope	non-transparent material (photographs, drawings, texts, models)
audio-visual	tape recorder with synchroniser and slide projector	sound slide
	sound film projector (16mm and Super 8mm)	sound film
	TV set	TV programme
	videotape recorder (magnetoscope)	videotape
	video-gramophone	videodisc
feedback	teaching machine (individual)	audio-visual or printed
	console (collective)	

Survey of the recommended hardware for nine-year elementary schools

	TV set	radio set	tape recorder	slide projector	Super 8 film projector	overhead projector	16mm film projector	record player	Earphone language study
1st-2nd grade	x	x	x		x			x	x (x)
3rd-5th grade	x	x	x	x	x		x	x	x
Czech language	x		x	x				x	
Russian language and others			x	x					x
Civics	x	x	x	x			x	x	
History	x	x	x	x		x	x		
Geography	x			x		x	x		
Mathematics						x			
Physics	x			x	x	x	x		
Chemistry	x			x	x	x	x		
Natural history	x			x	x	x	x		
Physical education and pre-military training			x		x		x		
Art	x			x			x		
Technical training				x	x		x		
Music	x		x	x				x	

x for schools with group teaching and for audio-oral programmes

Survey of the recommended basic hardware for general subjects in secondary schools

	Tape recorder	Slide projector	Film projector (cassettes)	Overhead Projector	16mm sound film projector	record player	earphone set for language study
Czech language	+	+				+	
Russian language and a further modern language	+	+				+	+
Latin		+					
Civics	+	+			+		
History	+	+		+	+		
Geography	+	+		+	+		
Mathematics				+			
Geometry				+			
Physics		+	+	+	+		
Chemistry		+	+	+	+		
Biology		+	+	+	+		
Art			+				
Music	+	+				+	
Physical education and pre-military training	+	+	+	+		+	

Special classrooms for audio visual communication

Key:

MG - tape recorder

R - loudspeaker

SL - earphones

G - gramophone

D - slide projector

F - film projector

PS - projection wall

S - synchroniser (for the tape recorder to make sonor slides)

OP - control panel of the language laboratory

Z - amplifier (for the microphone)

M - microphone (in earphones)

VP - feedback evaluation panel

T - feedback push button

TV - television set

I. Auditive communication for group listening

II. Auditive communication for individual listening
- wireless distribution
- cable distribution

III. Auditive communication for the combined collective and individualised listening

IV. Visual communication of a still picture by slide projection and overhead projection

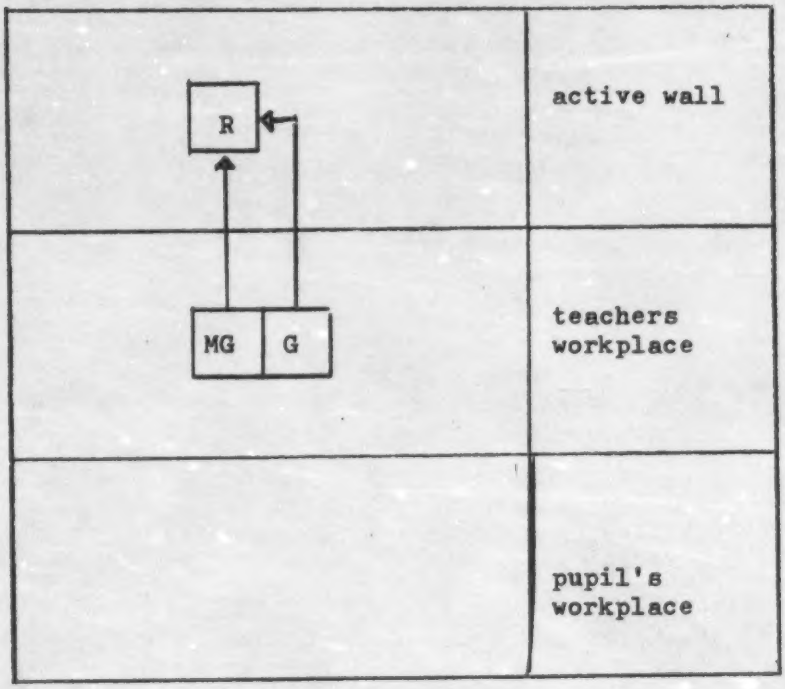
V Audio-visual sound slide communication

VI, Audio-visual film communications

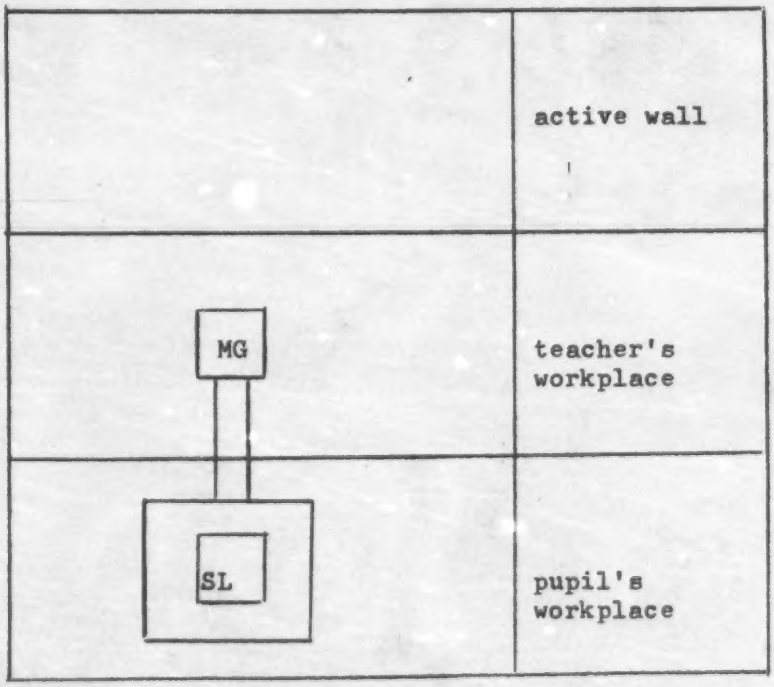
VII. Auditive, visual and audio-visual feedback communications (sound slide)
- (sound slide, film and TV communication)

VII. Audiophonic and audio-visual communication in language studios and laboratories
- wireless distribution
- cable distribution

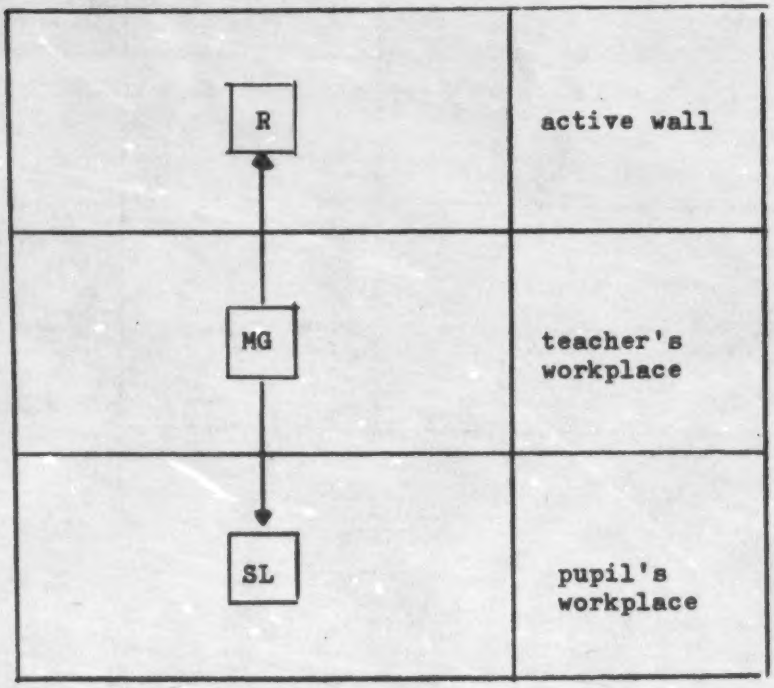
I. Auditive communication for group listening



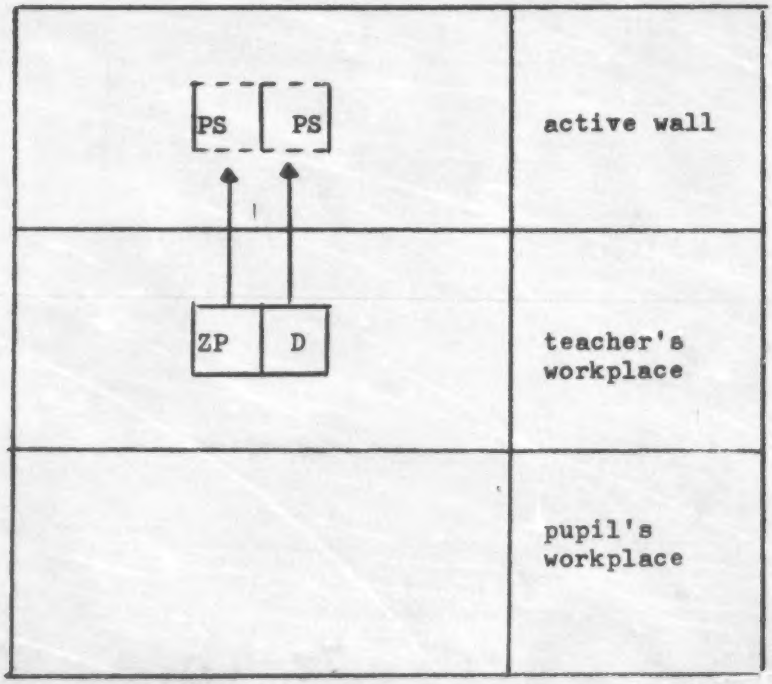
II. Auditive communication for individual listening



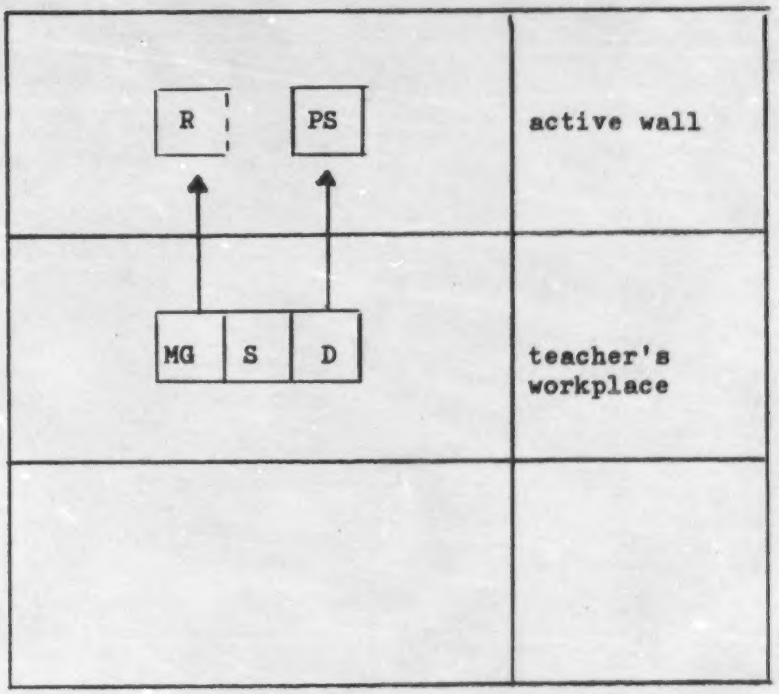
III. Auditive communication for combined collective and individualised listening

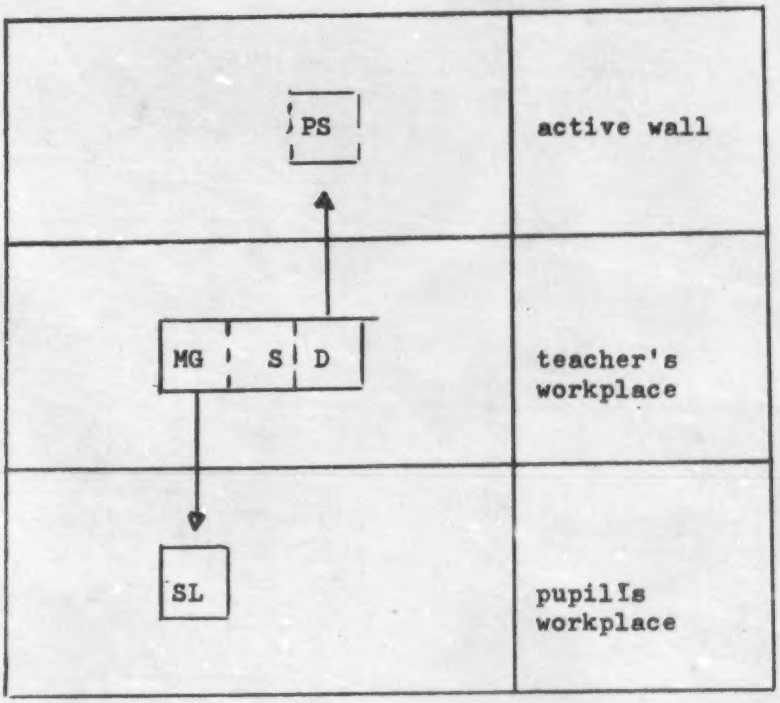


IV. Visual communication of a still picture by slide projection and overhead projection

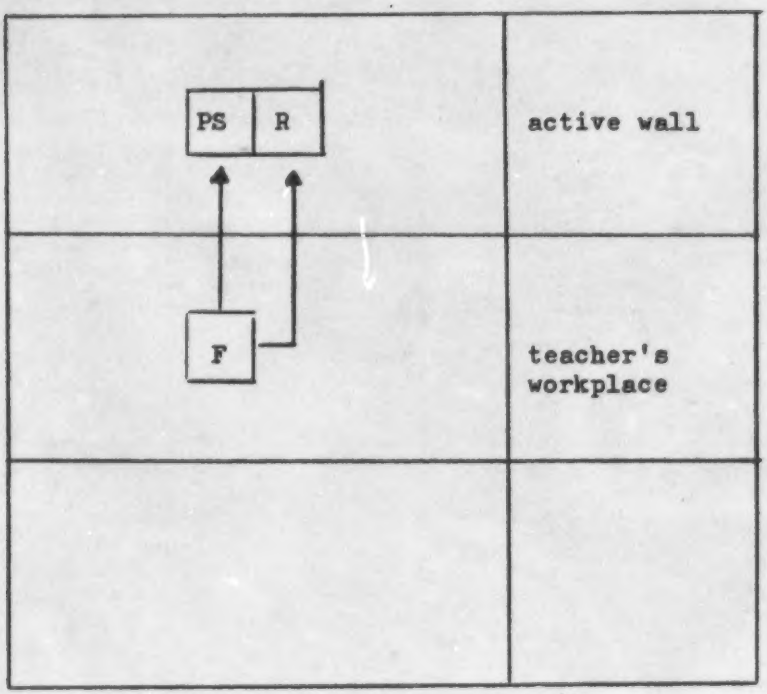


V. Audio visual sound slide communication

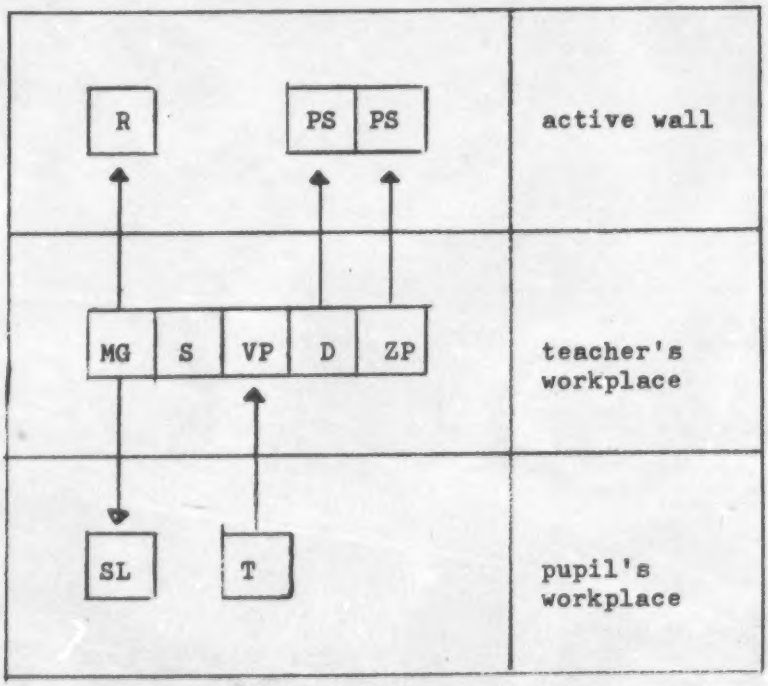




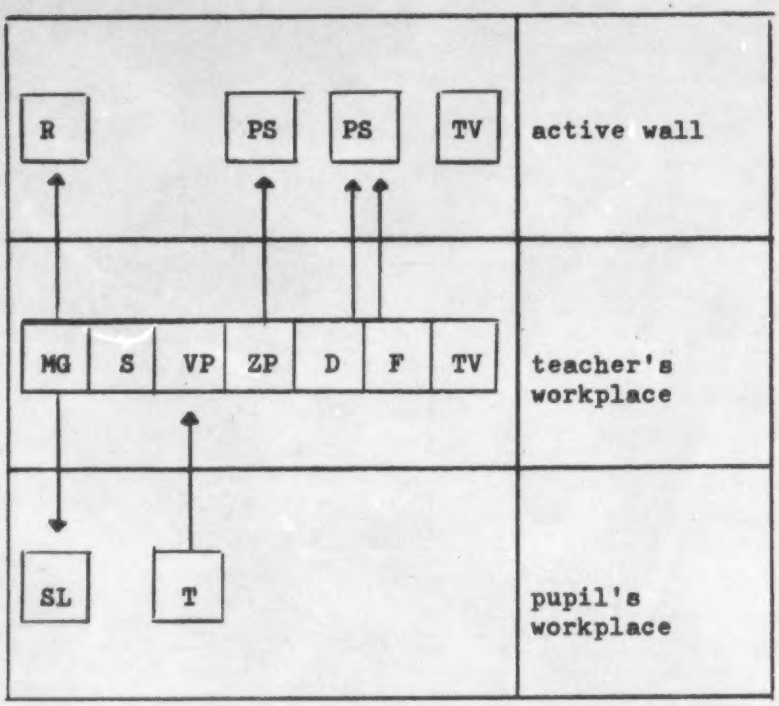
VI. Audio visual film communication



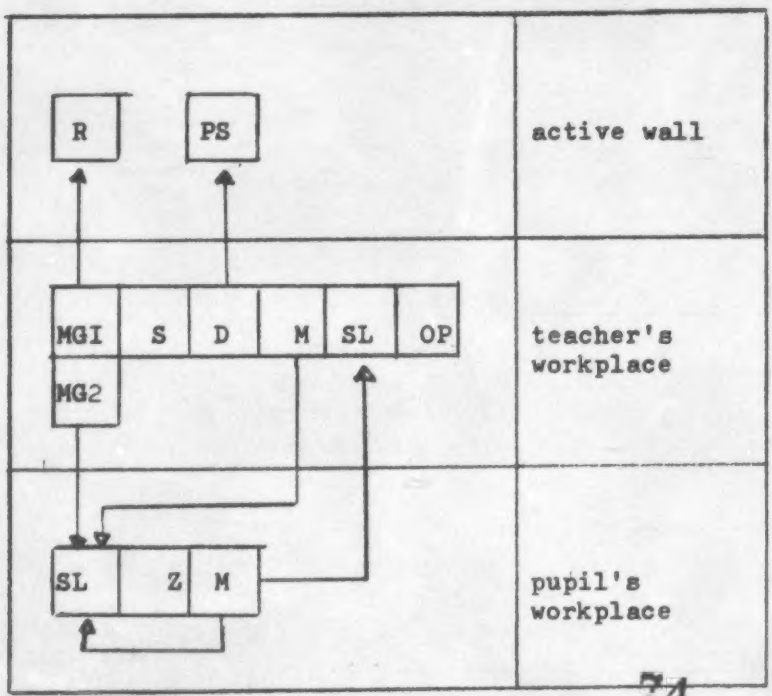
VII. Auditive, visual and audio-visual feedback communications (sound slide)



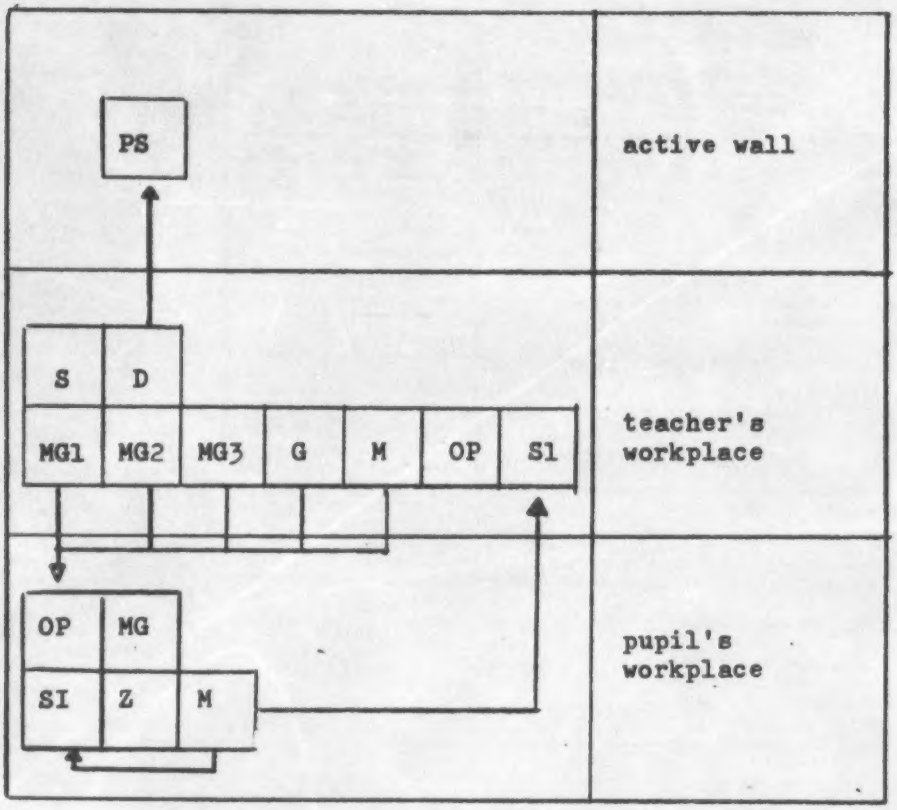
(sound slide, film and TV communication)



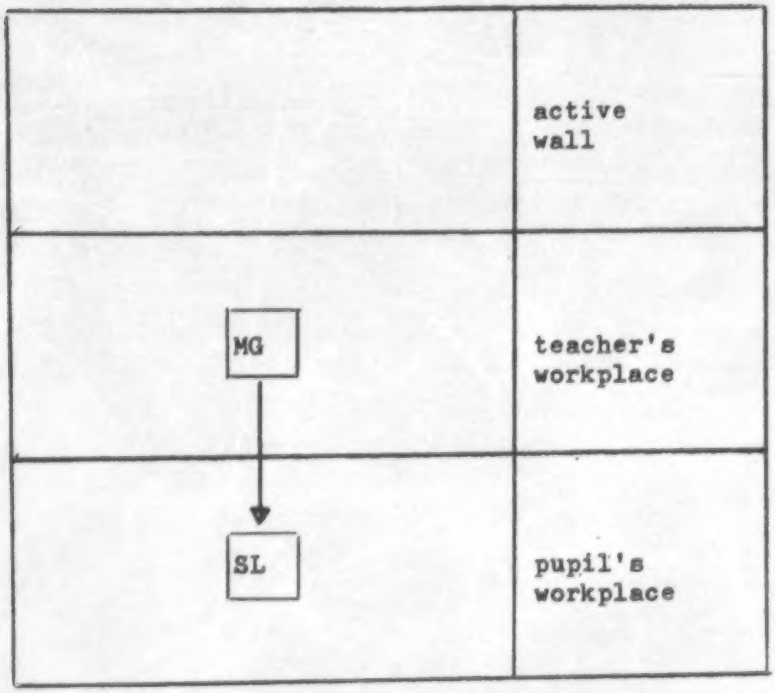
VIII. Audiophonic and audio-visual communication in language studies and laboratories



wireless distribution



cable distribution



Annex 7

General organisation chart

of Komenium, Prague, and
Ucebne pomocky, Bansak Bystrica

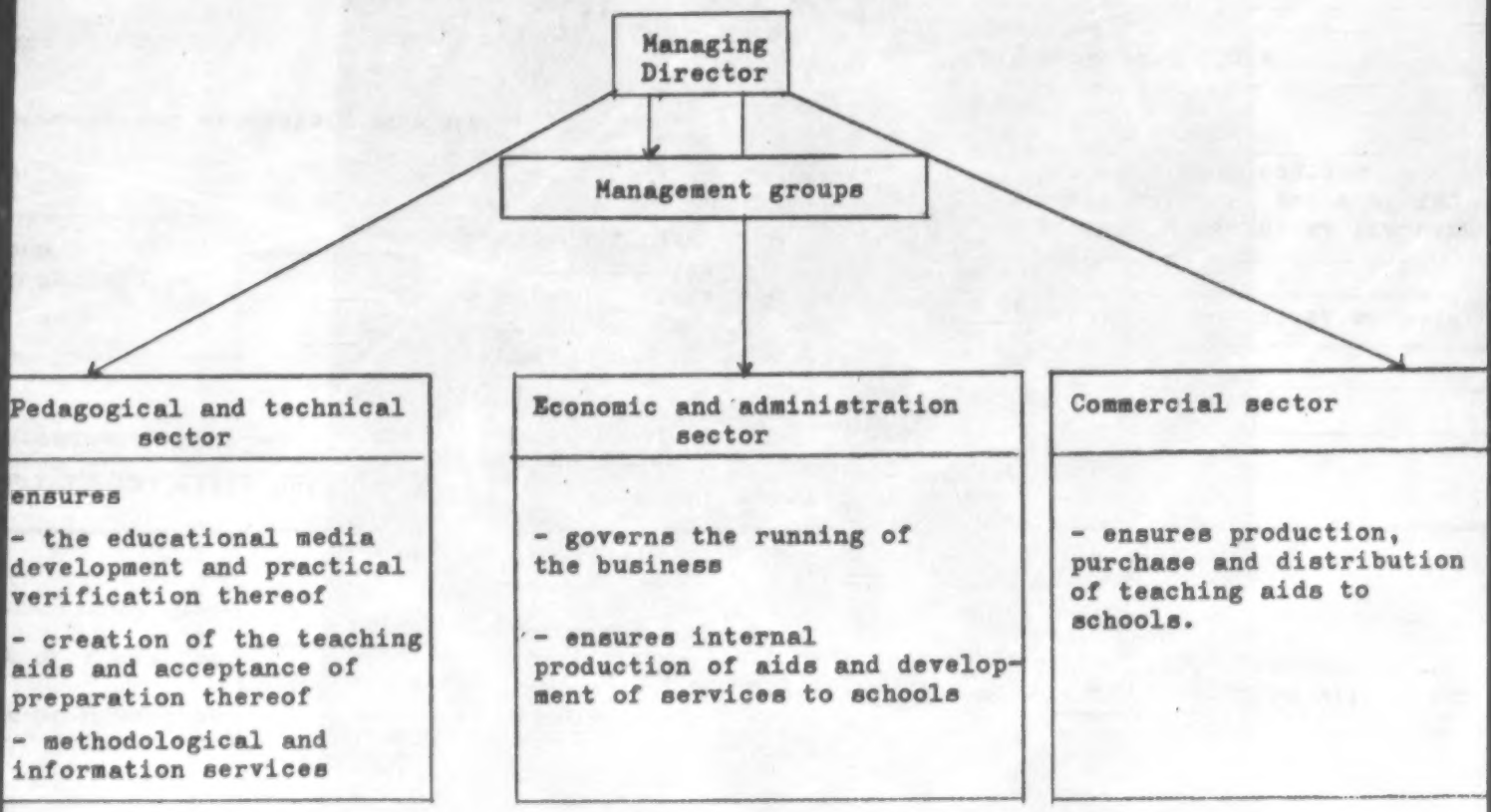

Managing Director
Management groups
Pedagogical and technical sector
ensures
- the educational media development and practical verification thereof
- creation of the teaching aids and acceptance of preparation thereof
- methodological and information services
Economic and administration sector
- governs the running of the business
- ensures internal production of aids and development of services to schools
Commercial sector
- ensures production, purchase and distribution of teaching aids to schools.

Chart of central distribution

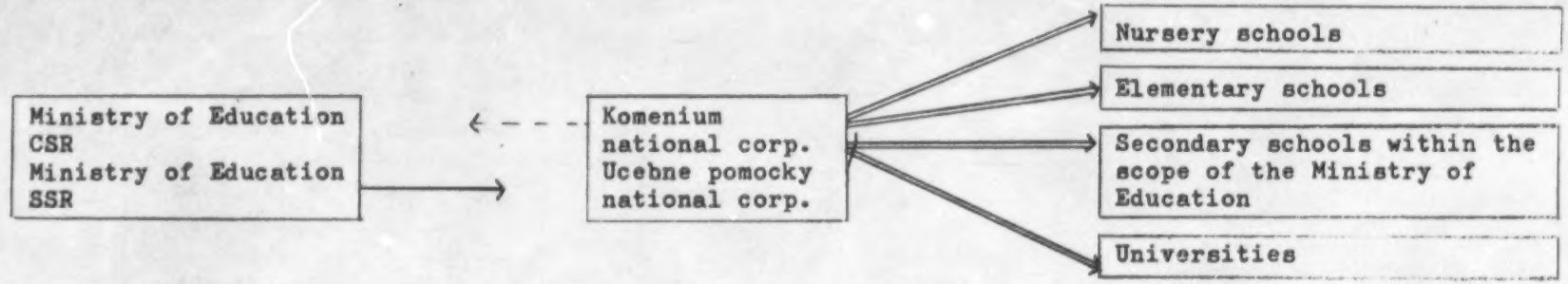
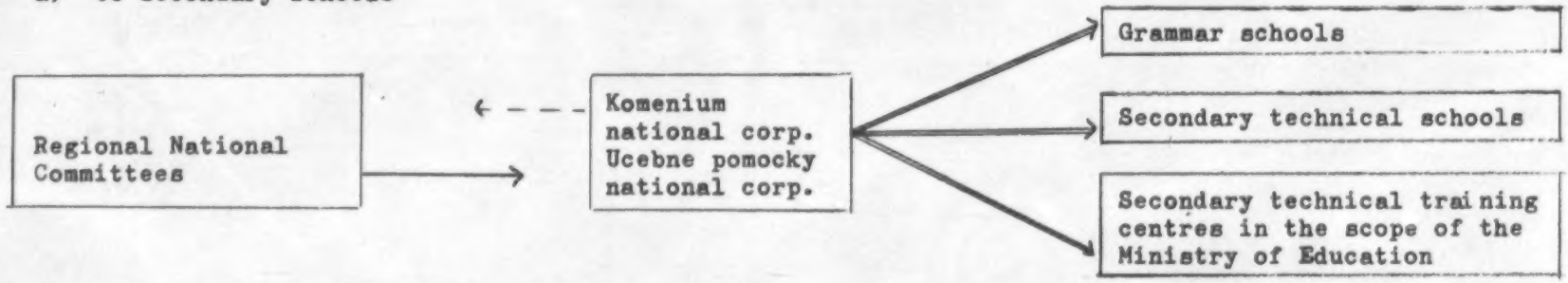


Chart of regional distribution

a) to secondary schools


Regional National Committees
Komenium national corp.
Ucebne pomocky national corp.
Grammar schools
Secondary technical schools
Secondary technical training centres in the scope of the Ministry of Education

b) to nursery and elementary schools

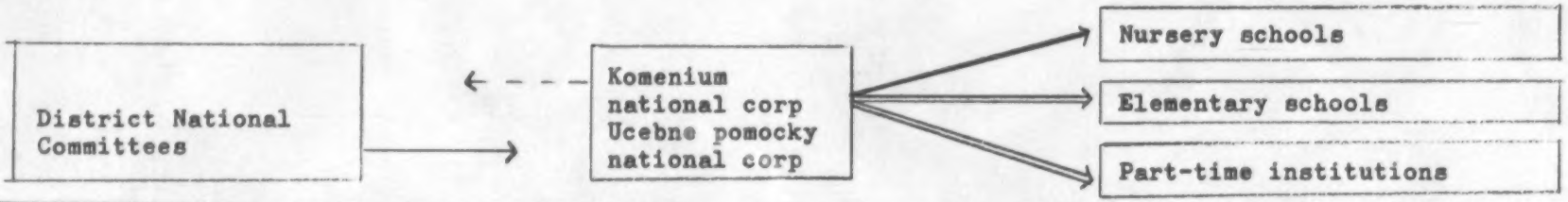
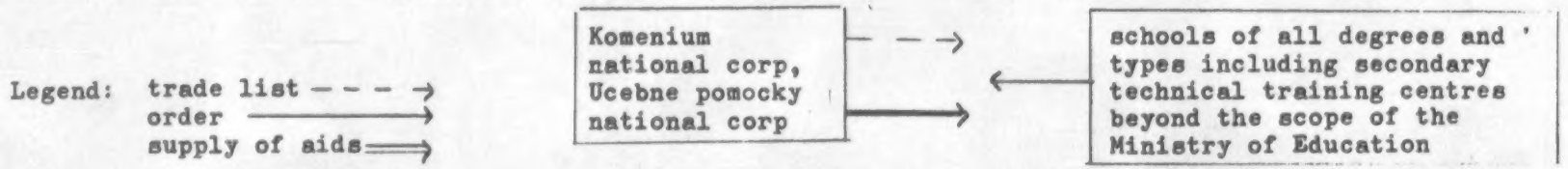


Chart of individual deliveries according to trade lists


Legend: trade list
order
supply of aids
Komenium national corp, Ucebne pomocky national corp
schools of all degrees and types including secondary technical training centres beyond the scope of the Ministry of Education

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